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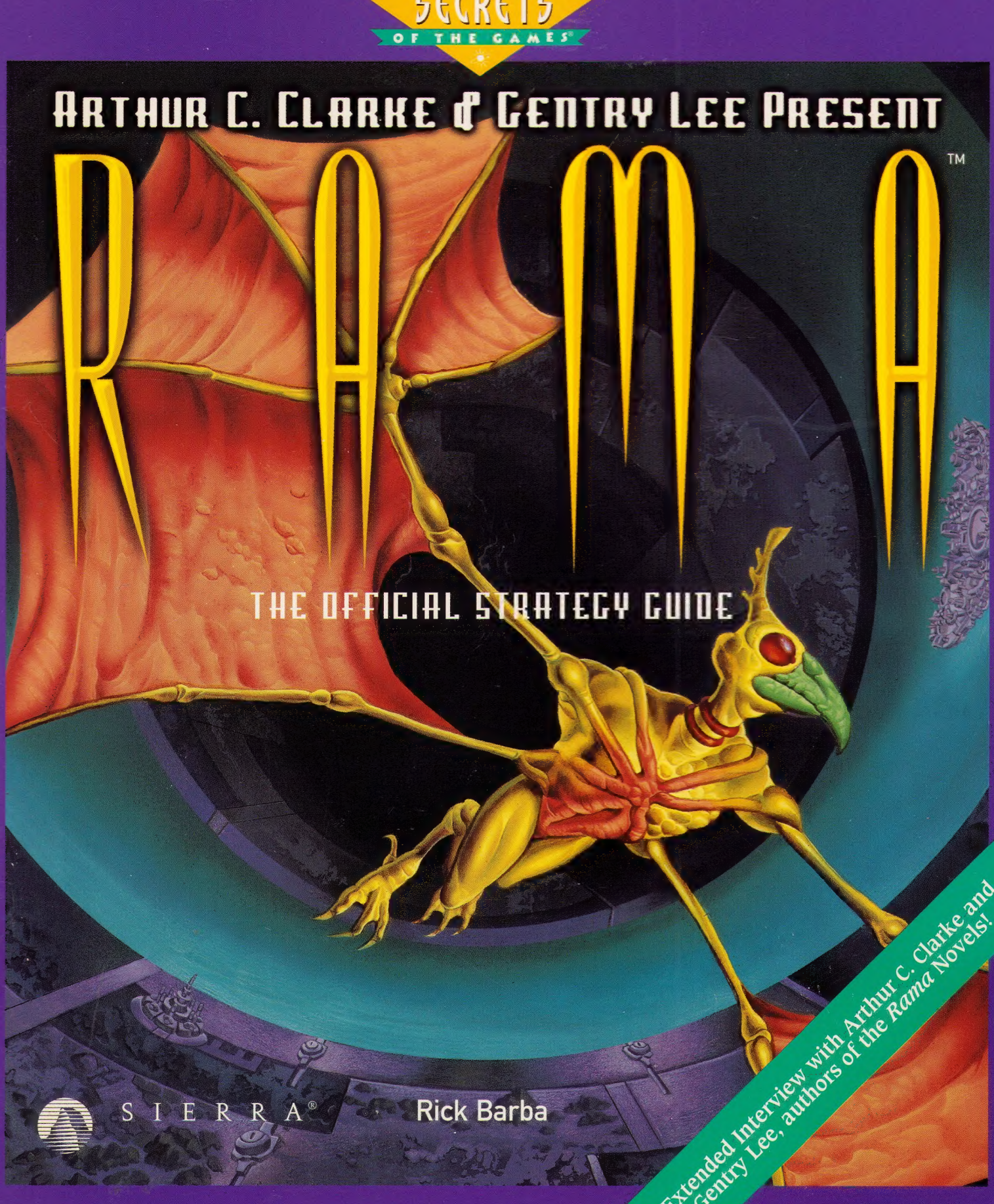
Arthur C. Clarke & Gentry Lee Present

RAMA™

The Official Strategy Guide



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Extended Interview with Arthur C. Clarke and Gentry Lee, authors of the *Rama* Novels!

RAMA™

The Official Strategy Guide

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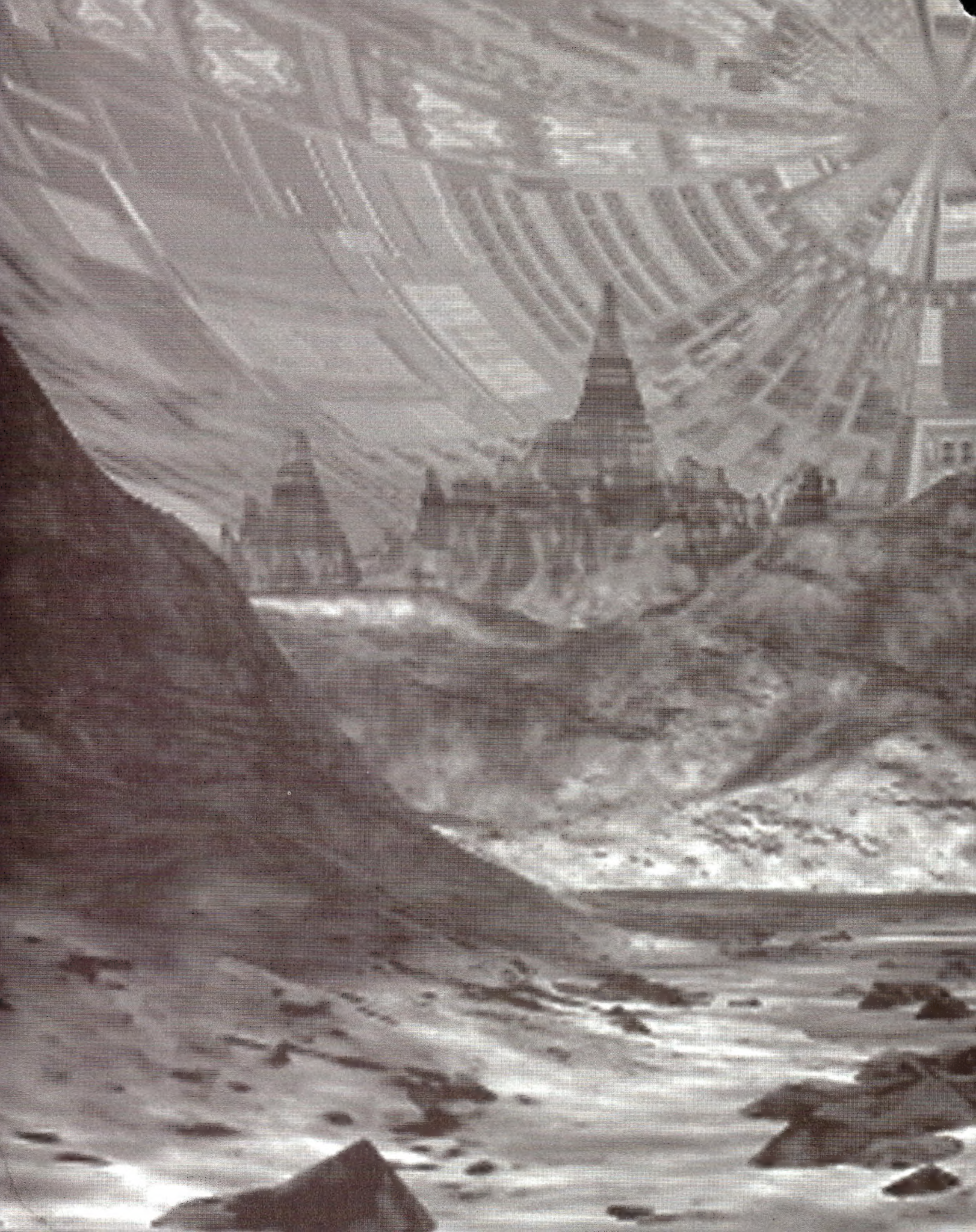

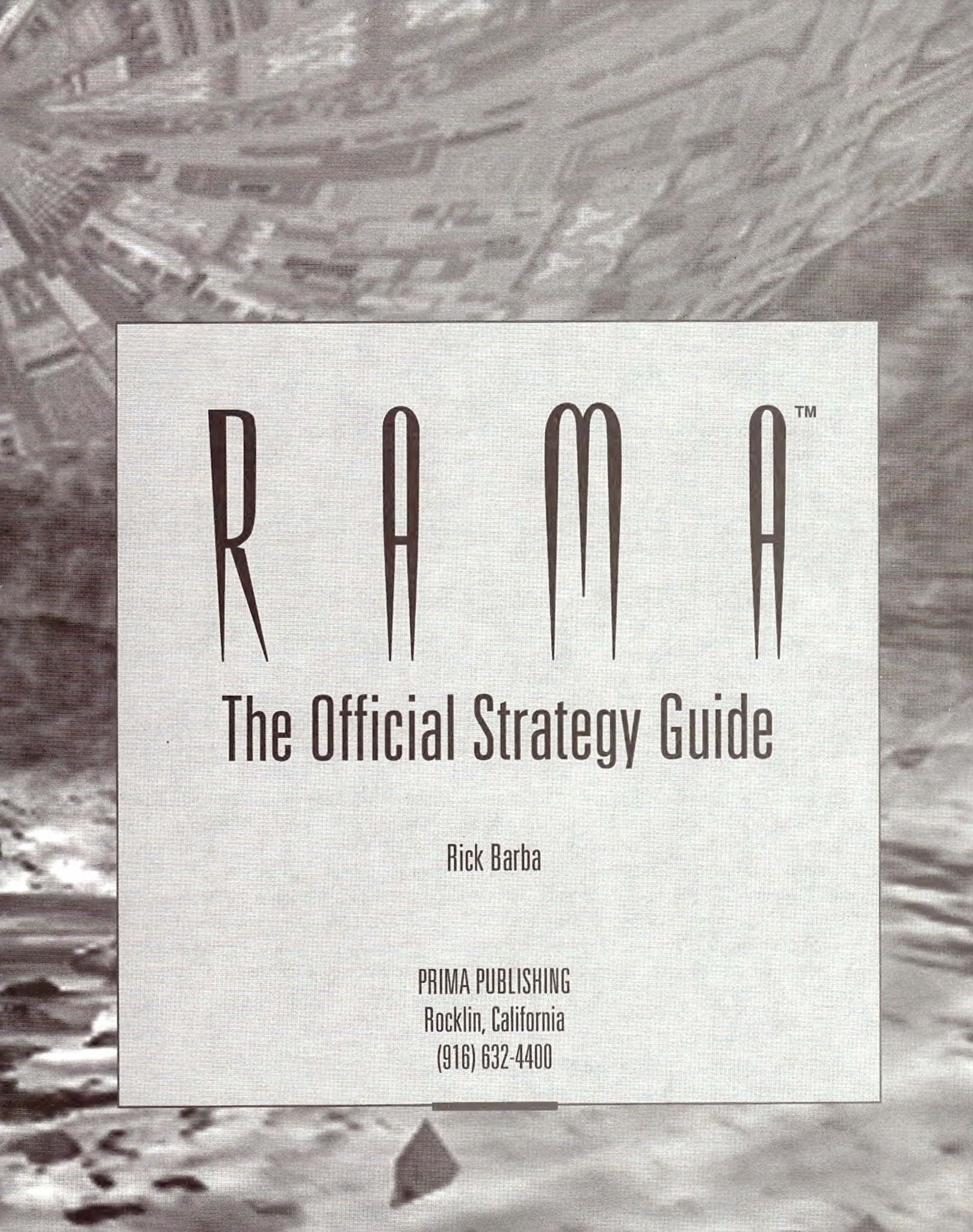

RAMA™

The Official Strategy Guide

Rick Barba

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Acknowledgments

First of all, I'm sure I speak for millions in thanking Arthur C. Clarke for his entire oeuvre of both fiction and non-fiction, and in particular, for Rendezvous with Rama, one of the great science fiction novels of all time. Thanks to Gentry Lee for not only pushing the Rama series to fabulous new heights in the three sequel novels, but for bringing it so vividly to a new medium. And thanks to Kate Kloos at Sierra for all her generous, good-natured help with this book, despite the exigencies of her own looming deadlines.

On the editorial end of things, special thanks to my project editor Chris Balmain for his expert guidance and good humor; to Connie Nixon for yet another stellar book design; and to Juliana Aldous and Debra Kempker for their understanding and all-around support.

RAMA

Foreword

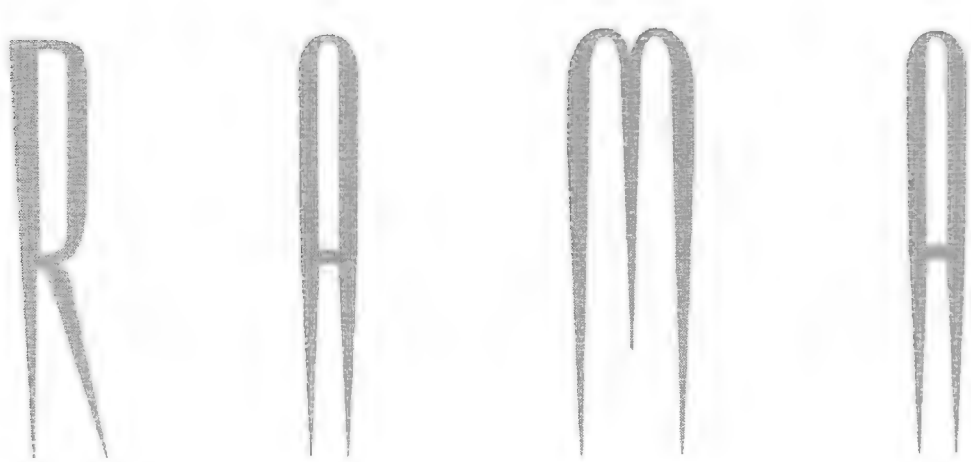
It is with delight that I welcome you to another element in the RAMA universe. Ever since Arthur C. Clarke first described the gigantic, enigmatic cylindrical spaceship of interstellar origin in his landmark and award-winning novel RENDEZVOUS WITH RAMA (1972), I have been fascinated by the fundamental concept of human contact with extraterrestrial beings whose technological capabilities far surpassed ours. It was my great fortune to have Arthur select me as his collaborator to write three more novels (RAMA II (1989), THE GARDEN OF RAMA (1991), and RAMA REVEALED (1994)) that extended and further developed this RAMA universe.

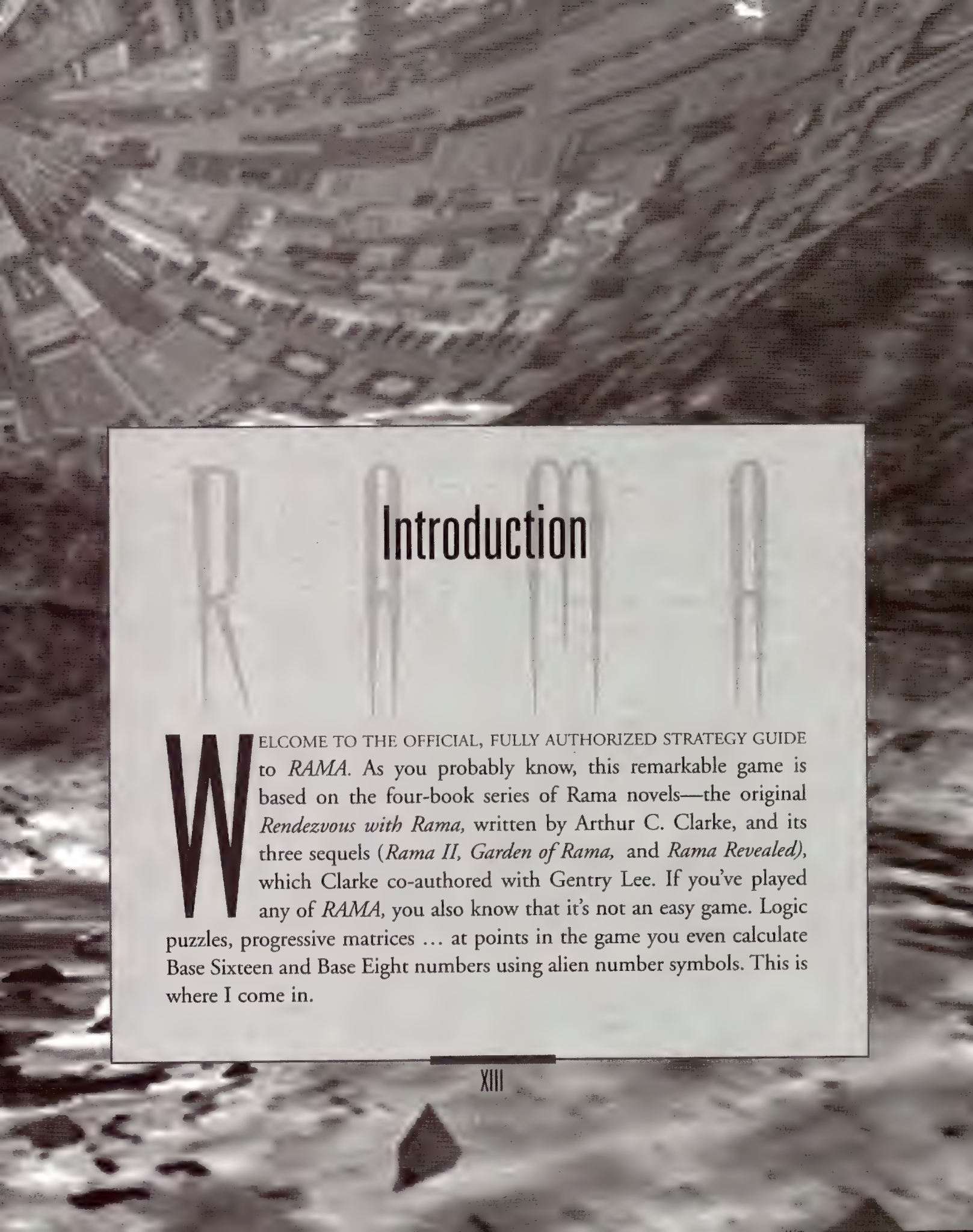
When I first suggested to Arthur the idea of a CD-ROM adventure game set in our RAMA world, he was a little sceptical. But as the design evolved and he too saw how the excitement and wonder of RAMA could indeed be transferred to another artistic medium, Arthur became one of the most enthusiastic supporters of the project. That enthusiasm is evident in his participation in the game itself.

The essence of our RAMA is contained in the game you are about to play. My original vision of the game has been upgraded and enhanced by the work of an outstanding team, foremost among whom I would like to cite our superb director Mr. Mark Hood, our brilliant artistic leader Richard Hescox, and our indefatigable, jack of all trades producer Kate Kloos. They have all added immeasurably to the quality of the final product.

I have only one request of you, the player. As you immerse yourself in this amazing world, please take the time to suspend your disbelief completely. Try to imagine what it would really feel like to be a human being exploring, for the first time, an unknown alien spaceship larger than a major world city. Let yourself feel how thrilling it would be, in actuality, to confront engineering marvels created by other intelligences, or to converse, however simply, with beings who evolved somewhere else out there, among the stars. If you allow yourself the luxury of that kind of patient, thoughtful playing, then I believe that RAMA will come to occupy a very special place in your mind and heart as well.

—Gentry Lee





Introduction

WELCOME TO THE OFFICIAL, FULLY AUTHORIZED STRATEGY GUIDE to *RAMA*. As you probably know, this remarkable game is based on the four-book series of Rama novels—the original *Rendezvous with Rama,* written by Arthur C. Clarke, and its three sequels (*Rama II, Garden of Rama,* and *Rama Revealed),* which Clarke co-authored with Gentry Lee. If you've played any of *RAMA,* you also know that it's not an easy game. Logic puzzles, progressive matrices … at points in the game you even calculate Base Sixteen and Base Eight numbers using alien number symbols. This is where I come in.

How to Use this Book

Before we go any further, let's make one thing clear. This book is not a substitute for the game manual. It assumes you've read the manual and you're familiar with the *RAMA* interface. If this is not the case … well, as Puck might say: Hie thee with alacrity to the documentation. Once you've done that, this book is quite easy to use.

Part One: "RAMA: An Annotated Walkthrough" is a detailed, step-by-step solution path for the game. The walkthrough is divided into chapters for each of the major RAMA areas—the Camps, Central Plains, Beam Region/London, Wheel Region, Bangkok/Iceport, New York, and the three underground lairs. Each chapter offers not only quick solutions but also explains the puzzle logic, when possible. Use the Table of Contents to find the location or puzzle at which you're stuck, then turn to that section to get all the answers you seek.

What does "annotated" mean? Hey, do I look like a dictionary? Look it up. Meanwhile, here's a short sample of an annotated walkthrough which explains how it works:

Name of Location/Puzzle

Sometimes puzzles need a setup. Or locations need some description that nudges you toward points of interest. In this walkthrough, a few short sentences often introduce each new venue in the game.

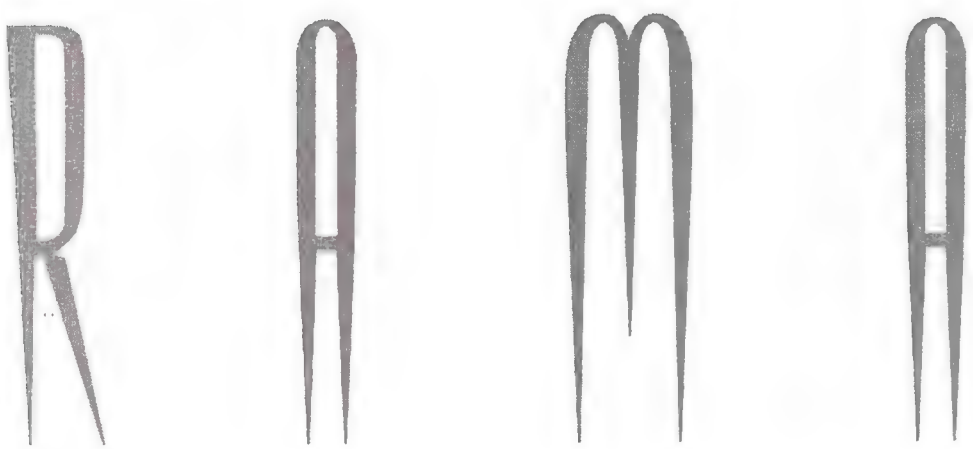
Then comes a list of "action bullet points."
These are tasks you must complete to win the game.
Unless otherwise noted.
If you want, you can skip all of the annotation and simply refer to the action bullet points.

But sometimes gamers want more than just answers … they want explanations. You'll find background information, commentary, discussion of puzzle logic, bad jokes, and other incidental information in the paragraphs between the action bullet points.

More action bullet points follow.
Soon you win the game.
Your life becomes fully actualized.

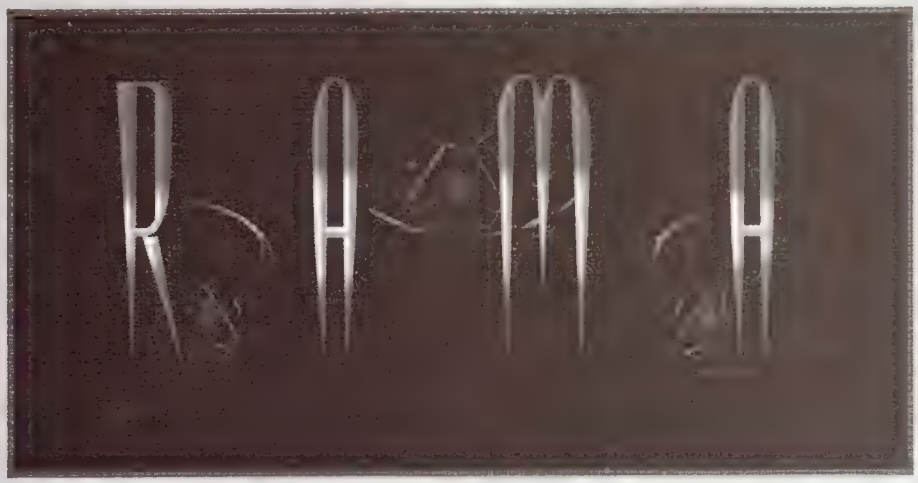
Part Two: "A Conversation with Arthur C. Clarke and Gentry Lee" offers a fascinating look at one of the true giants of science fiction. My advice: Read this interview. I guarantee you'll find it enjoyable and provocative, whether you're an Arthur C. Clarke fan or not. Clarke is author of the two sci-fi classics *2001: A Space Odyssey* and *Rendezvous with Rama,* as well as dozens of other works of fiction and non-fiction. Lee, who designed *RAMA,* has been chief engineer on Project Galileo, the mission to the Jupiter system; director of science analysis and mission planning for NASA's Viking mission to Mars; and co-author of the three sequels to Clarke's original *Rama* novel, including *Rama II,* the book that provides the characters and setting for this game.

The interview was videotaped by Sierra at Clarke's home in Sri Lanka. You may recognize that small segments of the conversation appear in the "Interviews" section on the third CD-ROM of *RAMA.* This, however, is the full transcript of the conversation, and offers a far more extensive look at Clarke's ongoing fascination with the wonders of science and the universe.



Part One

RAMA: An Annotated Walkthrough



WELCOME TO YOUR OFFICIAL *RAMA* WALKTHROUGH—comprehensive, friendly, and painstakingly annotated. This section offers solutions to every *RAMA* puzzle while following a logical and dramatically coherent route through the game. Note, however, that this is not the *only* solution path through *RAMA*. Although *RAMA* features a fairly linear adventure-game plot—that is, individual tasks must be completed in a certain order—there's a lot of built-in flexibility in many areas. For example, you can explore *RAMA*'s Central Plains in various ways. Overall, this walkthrough strives to be efficient without sacrificing the integrity of *RAMA*'s story.

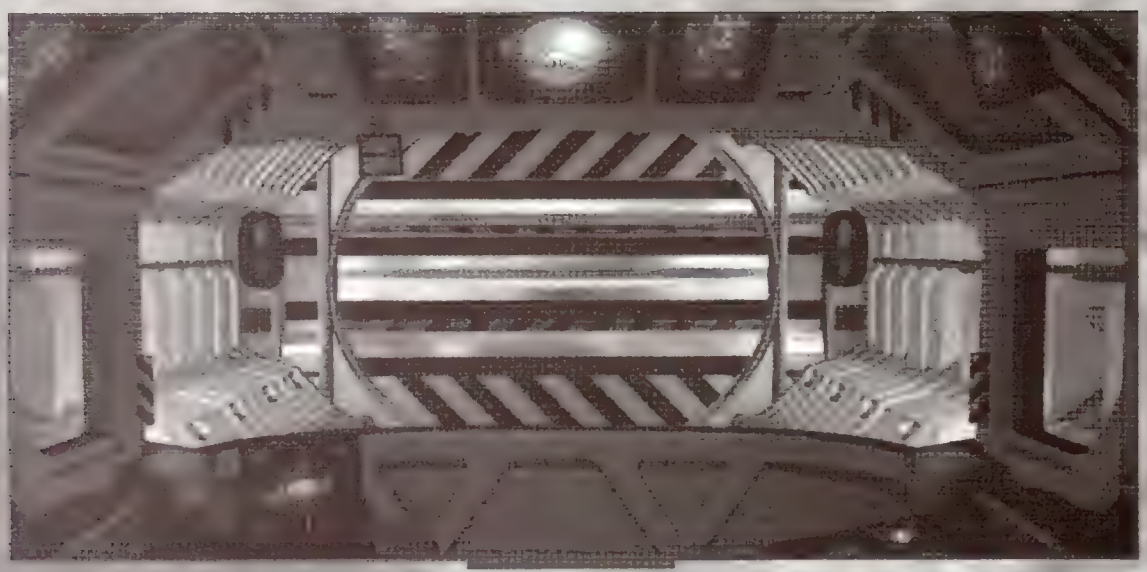


FIGURE 1-1. SHUTTLE LAUNCH. PREPARE TO ENTER THE BIGGEST TIN CAN IN THE UNIVERSE.

Chapter 1
ISA Hub Camp & RAMA Base Camp

As the game begins, you ride a drone shuttle from the *Newton*, which hovers about ten kilometers away from RAMA, into the shell of the massive cylindrical spacecraft. You arrive at a dimly lit ISA Hub Camp pitched on a platform near RAMA's south pole. This is the staging area for the RAMA expedition. When you exit the shuttle, Nicole des Jardins, the *Newton*'s chief medical officer, welcomes you to the expedition.

Figure 1-2. Welcome to RAMA. Nicole des Jardins, the crew's chief medical officer, gets you oriented to the Hub Camp. She's helpful, friendly, and attractive.

Dr. des Jardins points out the important features of the Hub Camp site—the lockers (where you'll find your all-important wrist computer), the Hub Camp computer, and the cable car. She suggests you explore the area, retrieve your equipment, and join the rest of the crew on the floor of RAMA. Then she takes the cable car down to her worksite.

RAMA Hub Camp

At this point, the only item in your inventory is your locker key. Note that it is marked with the number 2. This is your identification number on the *Newton* team.

- Go forward, turn left, then go forward twice to the Hub Camp computer.
- Click on the computer.

Dark, isn't it? Don't adjust your monitor, though. RAMA will lighten up soon enough.

FIGURE 1-3. HUB OF THE HUB. USE THIS COMPUTER TO ACCESS THE RECORDED INTRODUCTIONS OF THE CREW.

Hub Camp Computer

- Select Mail.
- View all of the listed vidmail.

FIGURE 1-4. VIDMAIL MECHANICS. HIGHLIGHT THE MESSAGE YOU WISH TO VIEW, THEN CLICK ON IT AGAIN (OR ON THE PLAY ARROW) TO PLAY THE MESSAGE. CLICK ANYWHERE TO HALT THE MESSAGE.

You'll learn a lot about each crew member from their introductory vidmails:

FIGURE 1-5. DR. SHIGERU TAKAGISHI

Dr. Takagishi, one of the two scientists on the *Newton* team, is genuinely thrilled and honored to be part of the RAMA expedition. His motivation appears to be pure, and he also seems like a pretty nice guy.

Dr. Brown, the *Newton*'s imperious chief scientist and acting mission commander, expects you to carry out his orders promptly. Since he has the power to expel astronauts from the team, you probably want to humor him as much as possible. Note the curious interruption halfway through Brown's message. Somebody just off-camera seems to demand his immediate attention. Who is it?

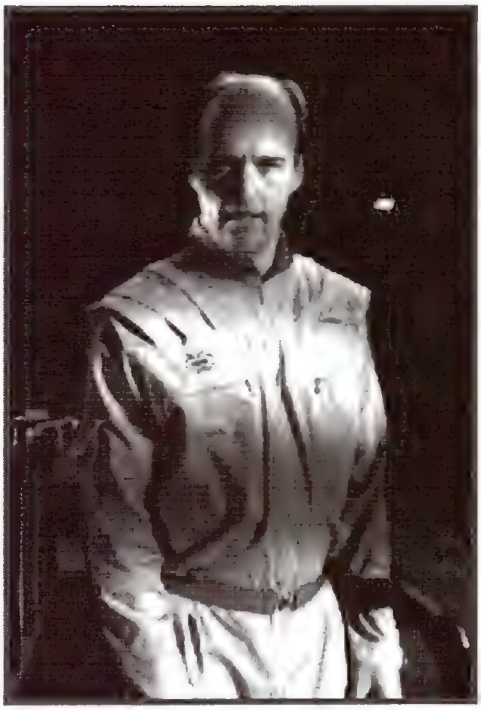


FIGURE 1-6. DR. DAVID BROWN

Ms. Sabatini, a world-famous TV journalist, has been assigned to create a video chronicle of the mission and provide live coverage for a captive Earth audience. Her manipulative powers are legendary, and she takes a conspiratorial, sultry tone as she asks you for personal information to flesh out the "human interest" angle of her broadcasts back to Earth.

FIGURE 1-7. FRANCESCA SABATINI

FIGURE 1-8. ADMIRAL OTTO HEILMANN

The admiral is the chief security officer of the *Newton* project. Paranoid by both profession and nature, Heilmann stresses the possible danger that RAMA represents to Earth. He also mentions the two other agents of the *Newton* security team, Yamanaka and Tabori.

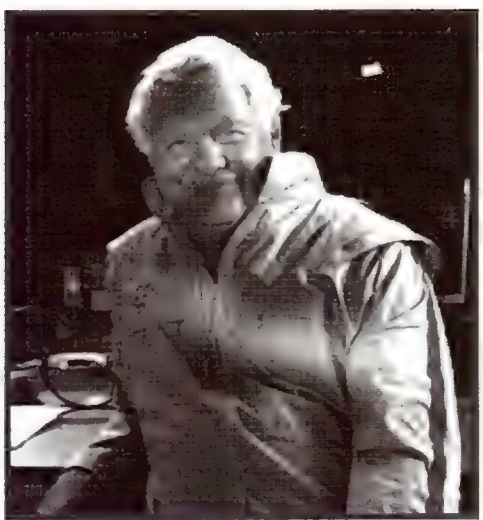


FIGURE 1-9. GENERAL MICHAEL O'TOOLE

General O'Toole is code-master and father figure of the astronaut team. Avuncular, friendly, deeply religious in the classic Roman Catholic mode, and Irish as hell, O'Toole digresses quickly into a discussion of his primary passion, number theory. Note carefully his fascination with the quadratic prime sequence that starts with the number 41. General O'Toole also reveals that the activation code for the cable car is 4143.

Richard Wakefield is an electronics engineering genius from England. He's also a Shakespeare fanatic whose primary avocation is crafting robotic Shakespearean characters. He's even created one for you—Puck. Viewing Wakefield's vidmail greeting activates Puck, who will become your companion and advisor after you retrieve him from Wakefield's locker, number 9.

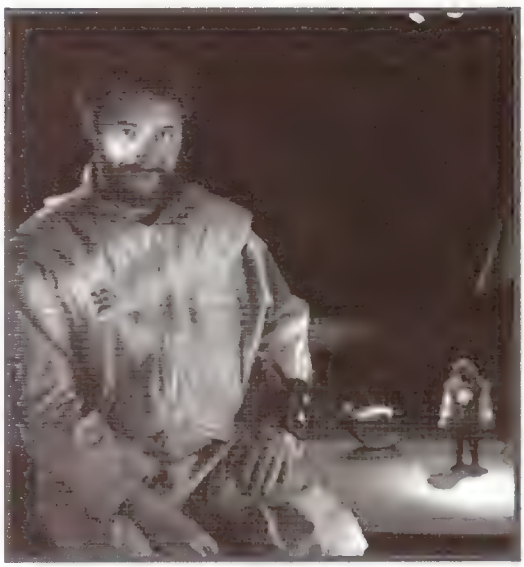


FIGURE 1-10. RICHARD WAKEFIELD

Reggie Wilson is the print media journalist assigned to the expedition. His professional jealousy of Ms. Sabatini is thinly disguised, as is his disdain for Dr. Brown. Wilson's tone is friendly but cynical, and he seems a bit uneasy about the RAMA expedition.

FIGURE 1-11. REGGIE WILSON

FIGURE 1-12. IRINA TURGENYEV

Astronaut Irina Turgenyev is a career service officer from Kiev in the Ukraine. She has severe misgivings about the "sinister" nature of the RAMA craft and the death of Valeriy Borzov, the original mission commander. She also warns you that Sabatini and Brown have, as she puts it, "their own agendas … different from the rest of us."

- After you view all messages, click on Return.
- Select Exit to exit the Hub Camp computer.

RAMA Hub Camp

- Turn around. *Whoa,* did you see that bird-thing?

FIGURE 1-13. ALIEN FLYBY. WHAT THE HECK WAS THAT?

- Now go to the lockers. Do you hear knocking?
- Click on locker 9 for a close-up.
- Click on the locker handle to open the locker and meet your humble servant, Puck.

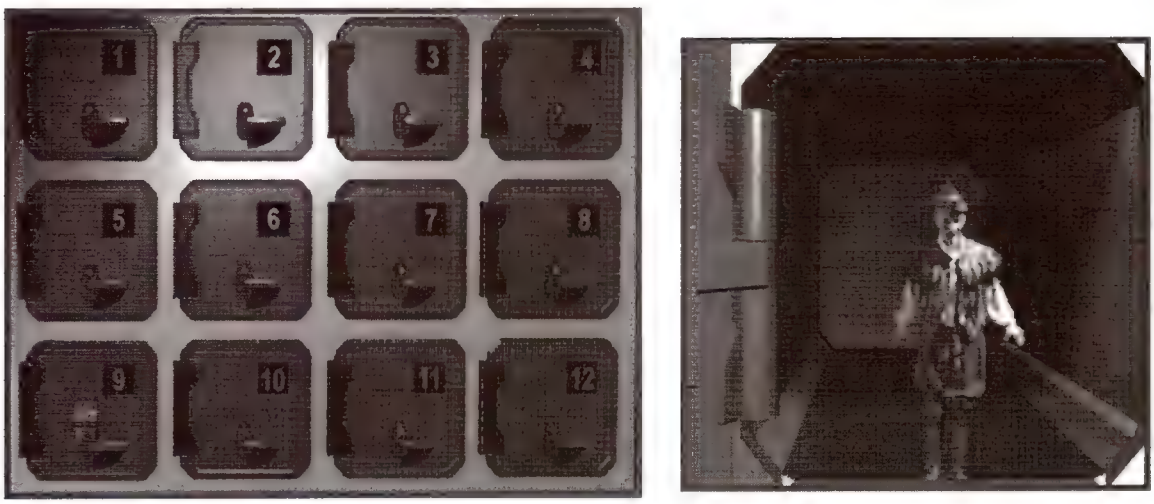


FIGURE 1-14. GET THE PUCK OUTTA THERE. OPEN LOCKER 9 AND MEET YOUR NEW LITTLE BUDDY. PUCK COMES PACKED WITH SENSORS AND IS PROGRAMMED FULL OF HANDY INFORMATION ABOUT RAMA.

Puck explains that he's your guide. Apparently, he's made the rounds of RAMA—if you click him on things, he can tell you about them. Programmed with a special multiwave receiver, the little guy can also pick up transmissions "of many different kinds" (as he so enigmatically puts it). What does this mean? It means that Puck is your *RAMA* Help function.

- Move back from the locker 9 close-up.
- Take the key marked "2" from inventory.
- Use the key on locker 2 for a close-up.

FIGURE 1-15. KEY NUMBER 2. YOU ARE LISTED AS CREW MEMBER NUMBER "002," SO THIS MUST BE THE KEY TO YOUR LOCKER.

- Use the key on the lock.
- Put the key back in your inventory.
- Click on the locker handle to open locker 2.
- Take both of the items from your locker—the wrist computer and the ISA multi-tool. When you take the second item, you should hear the cable car return.

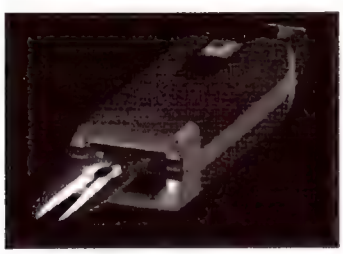


FIGURE 1-16. YOUR STUFF. AFTER YOU HAVE PUCK, GRAB BOTH OF THESE ITEMS FROM YOUR LOCKER TO TRIGGER THE RETURN OF THE CABLE CAR.

The cable car returns only after you get Puck from locker number 9 *and* retrieve both items from locker number 2.

Retrieving the wrist computer from locker number 2 triggers a pair of incoming "real-time" vidmail transmissions, both activated by a game timer. First, Francesca Sabatini asks you to grab a lighter from her locker. Then Nicole tells you Dr. Brown is expecting you. A few minutes later, the impatient Dr. Brown himself contacts you … and he's not too happy, Ace. How can you open Francesca's locker without the key? Answer: You can't.

FIGURE 1-17. REAL-TIME VIDMAIL. FRANCESCA NEEDS A FAVOR, BUT IT'S CLEAR THAT YOU'RE EXPECTED DOWN ON RAMA'S FLOOR … LIKE, IMMEDIATELY. PUT IN A TOKEN APPEARANCE.

You have time to explore the Hub Camp in search of Francesca's locker key, but why flounder around in the darkness? Dr. Brown expects you to make a prompt appearance on RAMA's floor, and we've already seen what a pompous jerk he can be. Besides, you'll find that your trip down is extremely "enlightening."

- Step back from the lockers and turn left.
- Go forward two steps to the cable car railing and turn right.
- Step into the cable car.

Inside the Cable Car

- Enter the cable car activation code that you got from General O'Toole's introductory vidmail message—4143.

- Press the red button.

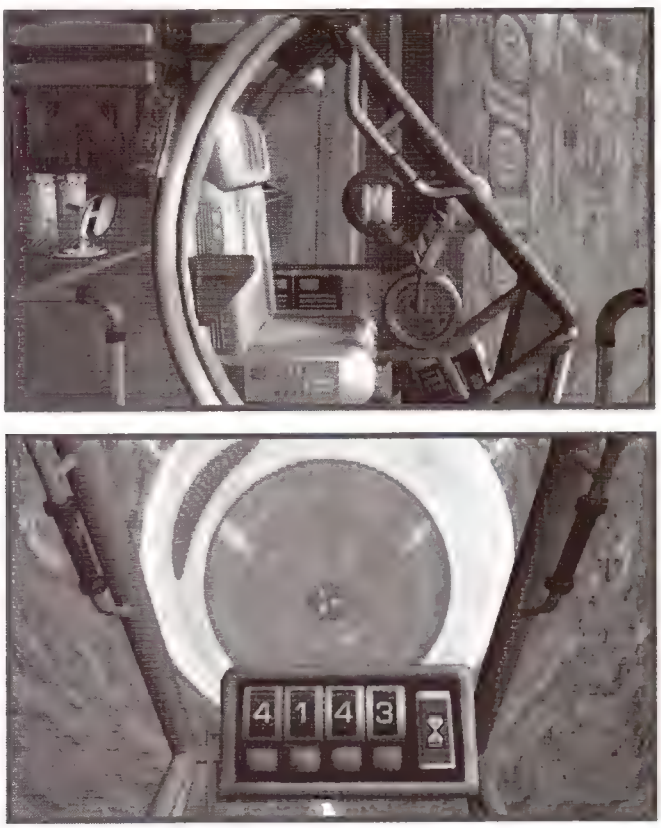


FIGURE 1-18. CABLE CAR CODE. GET IN THAT CABLE CAR AND ENTER THE CODE TO RIDE DOWN TO RAMA'S FLOOR ... AND WATCH AS "DAWN" BREAKS ACROSS THE MASSIVE CYLINDER.

As you ride down to the Base Camp, RAMA's massive lighting strips suddenly pulse to life, illuminating the interior of the vast cylinder. By the time you arrive at the Base Camp tent site, RAMA is fully lit ... and will remain so for the rest of the game.

RAMA Base Camp (Inside Tent)

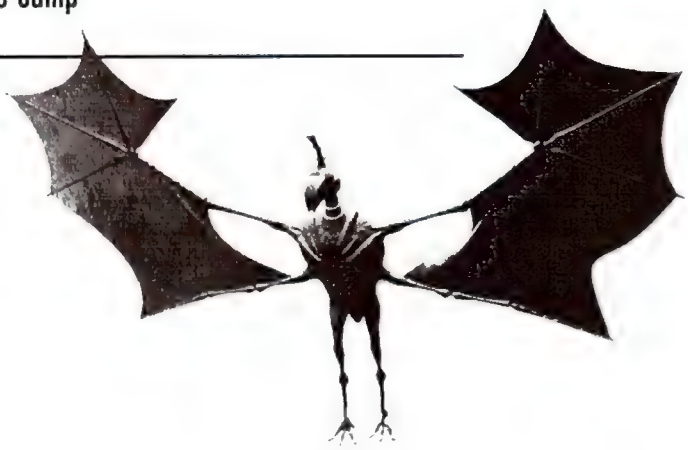
Now that the lights are on, and you've made a token appearance at the Base Camp, let's conduct a more thorough search of the Hub Camp.

- After the cable car arrives at the Base Camp, don't get out. Instead, push the red button again.
- Ride back up to the now-lit Hub Camp.

RAMA Hub Camp

- Go past the lockers and turn left to face the top of the ladder.
- Climb down the ladder.
- Since the lights are on, take the time to stop and look around.

FIGURE 1-19. GOING DOWN? NOW THAT THE OUTLOOK IS BRIGHTER, CLIMB DOWN THAT LADDER AND EXPLORE THE LEDGE BELOW THE HUB CAMP.



Ledge (Beneath Hub Camp)

- At the bottom of the ladder, turn right.
- Move forward to the big device.

What is that thing? Whatever it is, it's "Inactive" and "Not Armed." The markings indicate that the item is radioactive and belongs to the International Nuclear Agency. Hey … this wouldn't be a *bomb,* would it?

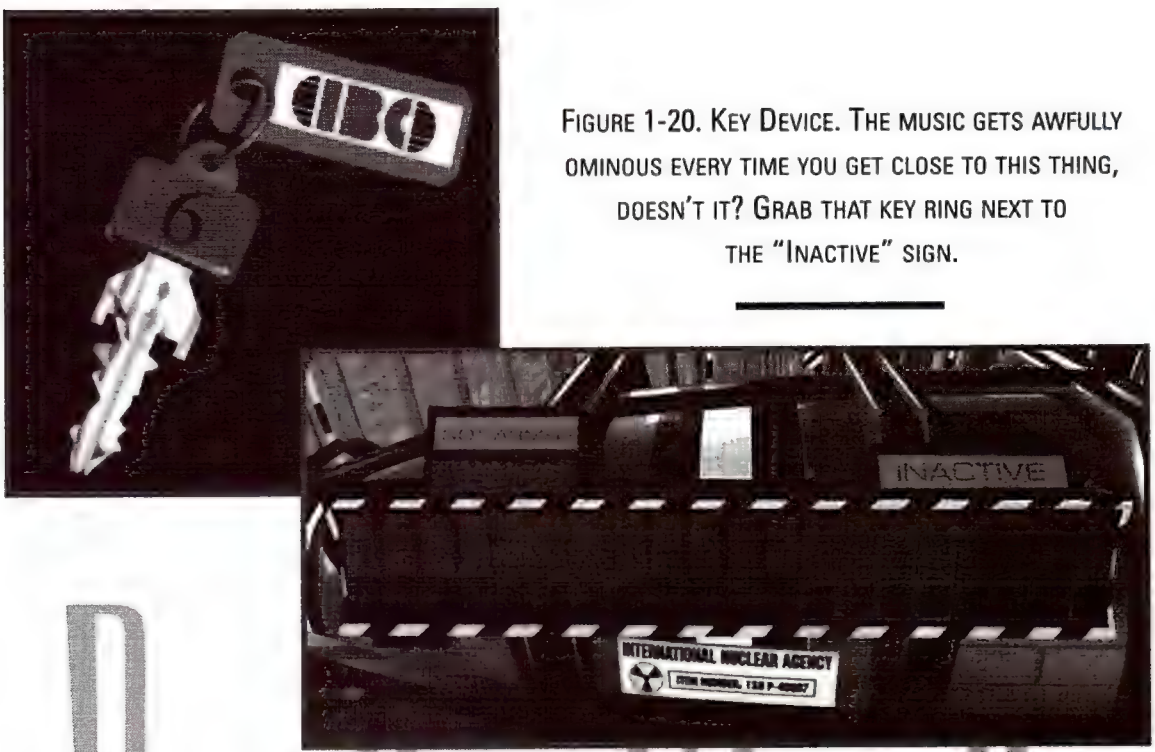


FIGURE 1-20. KEY DEVICE. THE MUSIC GETS AWFULLY OMINOUS EVERY TIME YOU GET CLOSE TO THIS THING, DOESN'T IT? GRAB THAT KEY RING NEXT TO THE "INACTIVE" SIGN.

- Take the key ring just to the right of the "Inactive" sign.
- Examine the key in inventory.

Looks like a locker key. Note the number 6 on the key. Note also the IBC key ring. IBC stands for International Broadcasting Company. Which crew member works for the IBC? That's right … Francesca Sabatini.

- Return to the ladder.
- Climb back up to the Hub Camp.

RAMA Hub Camp

- Go to the lockers.
- Click on locker 6 to get a close-up.
- Use key 6 to unlock the locker.
- Open the locker and take everything, including that two-tone matrix tile … which we'll label Tile L11 (See Figure 1-21).

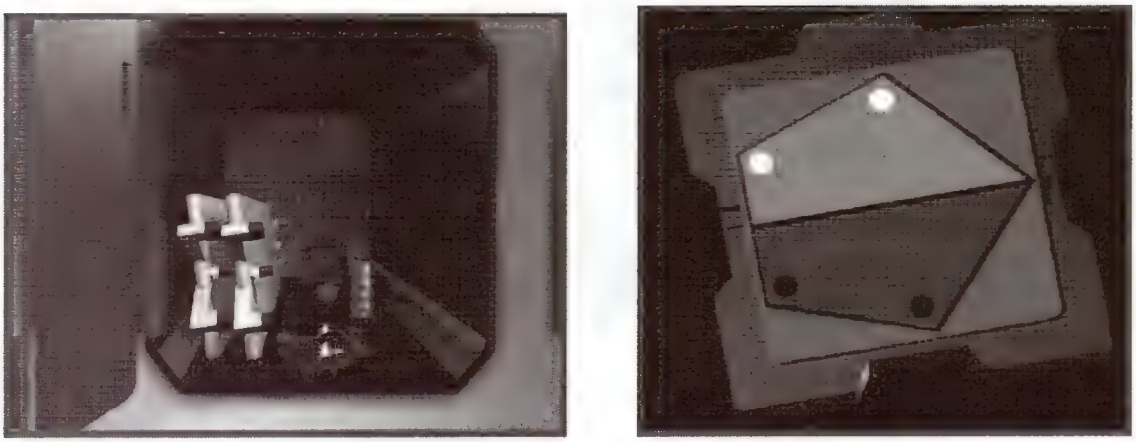


FIGURE 1-21. FRANCESCA'S STASH. INTERESTING STUFF IN LOCKER 6, INCLUDING THE LIGHTER SHE WANTS, A DATA CUBE, ANOTHER LOCKER KEY, SOME WEIRD TILES, AND A COUPLE OF THINGS THAT LOOK LIKE PUZZLE PIECES. THE MATRIX TILE SHOWN HERE WILL BE VERY IMPORTANT LATER.

- In inventory, put the data cube in your wrist computer.
- Read the message from Francesca Sabatini to Dr. Brown.

Looks like Sabatini and Brown are remarkably PR-conscious. And that unmarked key looks like another locker key, doesn't it? Turns out this one opens Admiral Heilmann's private receptacle. Convenient, isn't it?

- Use the unmarked locker key to open locker 7.
- Take the two objects inside—a lens etched with gold figures and another data cube.
- In inventory, put the data cube in your wrist computer.

Heilmann's data cube is encrypted, containing some sort of coded message to his henchmen Yamanaka and Tabori.

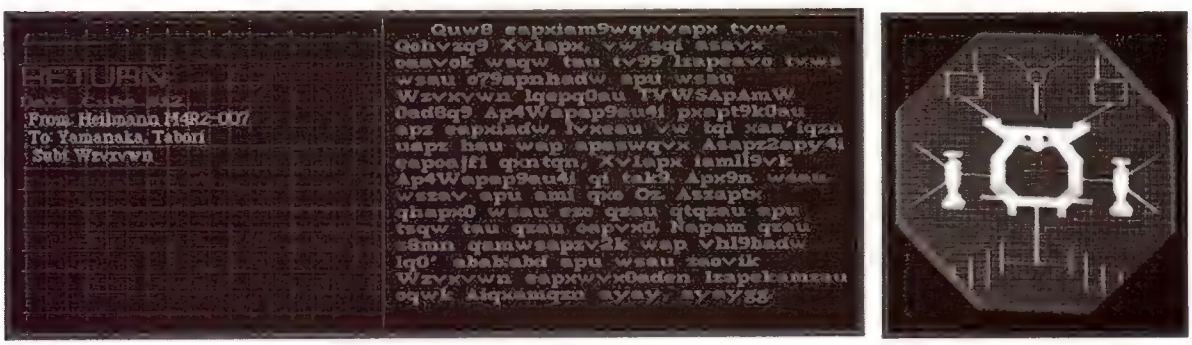


FIGURE 1-22. HEILMANN'S STASH. LOCKER 7 HOLDS THESE ITEMS—AN ODDLY ETCHED ALIEN LENS AND A DATA CUBE WITH AN ENCRYPTED NOTE.

- Exit the wrist computer interface.
- Return to the cable car.
- Push the red button to ride the cable car down to the Base Camp.

RAMA Base Camp

- Exit the cable car.
- Turn left to face the table with the specimen tray.
- Click on the specimen tray for a close-up view.
- Take the two square matrix puzzle pieces and the rectangular map piece. Optional: Open the refrigerator.

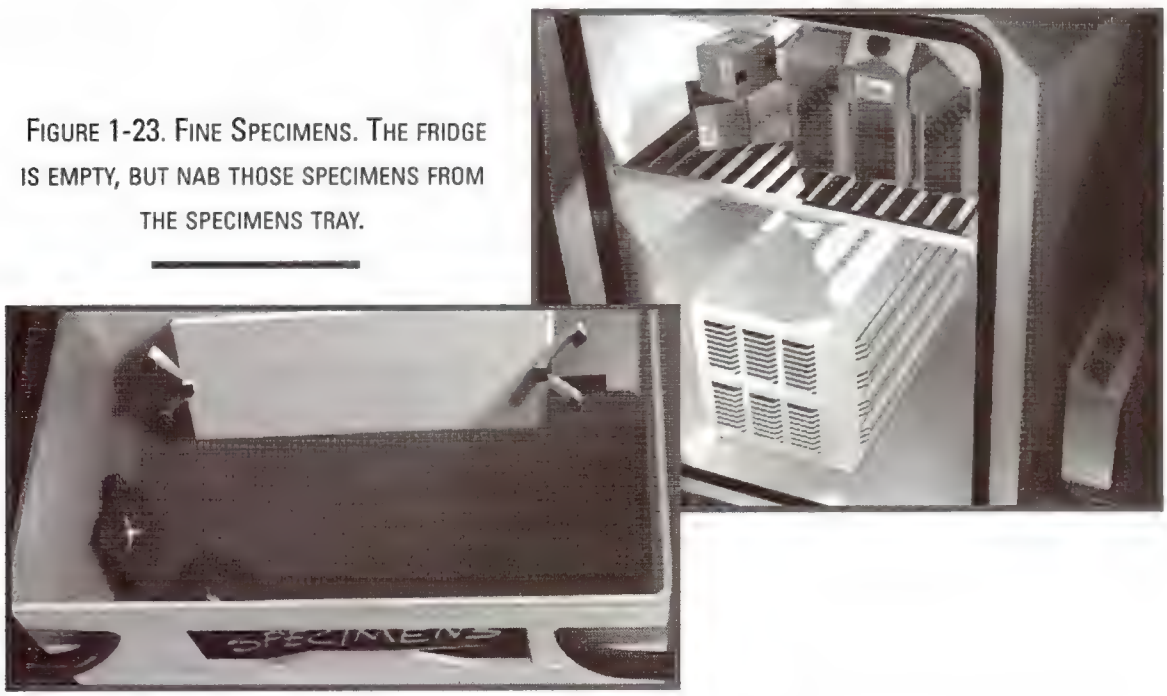


FIGURE 1-23. FINE SPECIMENS. THE FRIDGE IS EMPTY, BUT NAB THOSE SPECIMENS FROM THE SPECIMENS TRAY.

- Back away from the specimen tray and turn right.
- Approach the table against the far wall.
- Take and read the note from Nicole on the table.
- Take the data cube.
- Load the data cube into your wrist computer.

Raiding the fridge won't produce anything of interest yet. But during the course of the game, *Newton* crew members will place important items in both the specimen tray and the refrigerator.

Here's a real treat for Arthur C. Clarke fans—an excerpt from *3001: The Final Odyssey*, the long-awaited final installment of the four-book series that began with the legendary *2001: A Space Odyssey.*

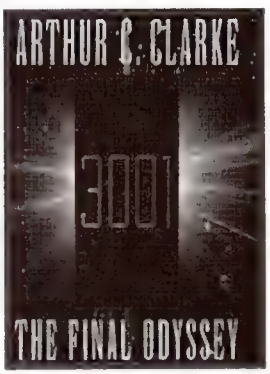


FIGURE 1-24. HAPPY EASTER! GAMERS REFER TO BURIED GAME TREASURE AS "EASTER EGGS." THAT DATA CUBE ON THE TABLE HOLDS THE MOTHER OF ALL EGGS, IF YOU'RE AN ARTHUR C. CLARKE FAN.

- Turn right and go forward to the doorway. Irina Turgenyev appears, grabs a loop of cable, and talks about Brown's "hubristic" plan to capture a crab biot.
- Follow Irina through the doorway.
- Turn right.
- Step forward to bring up the Central Plains Radar Map.

Chapter 2
The Central Plains

THE CENTRAL PLAINS OF RAMA can be reconnoitered in a number of ways. But in general, your first task is to gather matrix tiles and map puzzle pieces (See Figure 2-1), as well as other important objects. You need these items to access various levels within the two large Central Plains structures, dubbed London and Bangkok.

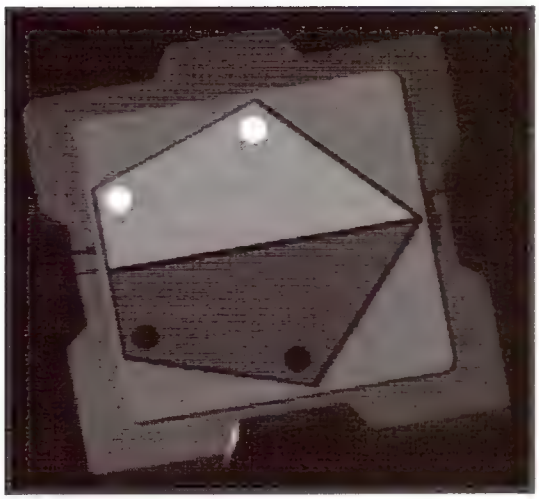


FIGURE 2-1. IN PLAIN SIGHT. CAREFULLY SCOUR THE CENTRAL PLAINS REGIONS FOR MATRIX TILES AND MAP PUZZLE PIECES LIKE THESE. YOU'LL SAVE YOURSELF TIME AND GRIEF IF YOU FIND THEM THE *FIRST* TIME THROUGH EACH REGION.

What's the Goal?

If you feel lost in the vast Central Plains, don't despair. All of your seemingly random exploration and puzzle-solving eventually leads to a logical nexus, the Iceport, which in turn directs you across the frozen Cylindrical Sea to the gates of New York.

Collecting Items

Most obtainable items in the Central Plains regions are scattered on the ground and easy to grab. However, if you neglect to pick them up on your first visit to that region, they disappear. Other astronauts pick them up … or worse, RAMA's garbage-collection system claims them. If that happens, you have to retrieve the necessary pieces from one of three places—the Base Camp (in the specimen tray or refrigerator); the trash biot bins, one each in the Beam and Wheel Regions; or the trash pit inside the London structure.

For details on the retrieval process, see chapter 6, "The RAMA Garbage Disposal System."

The Central Plains Radar Map

This walkthough assumes your thorough perusal of the *RAMA* game manual, so we won't discuss how to use the radar map to traverse the Central Plains. If you haven't read the section entitled "Getting Around RAMA" in the manual, do so now. I'll wait right here until you get back.

Many matrix tiles are red herrings. The Ramans want you to recognize the matrix patterns and place the correct tiles to prove you are an intelligent member of an intelligent species. (Ramans know that progressive matrices are excellent noncultural ways to assess intelligence.) But gather every tile you find, just in case. It costs nothing to keep items in inventory.

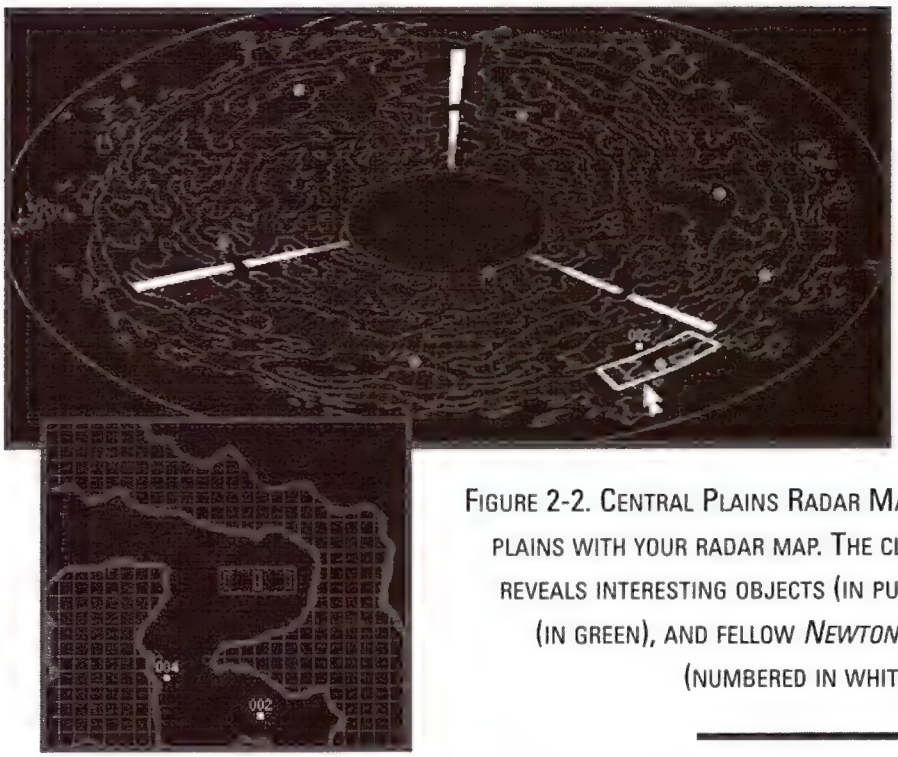


FIGURE 2-2. CENTRAL PLAINS RADAR MAP. NAVIGATE RAMA'S PLAINS WITH YOUR RADAR MAP. THE CLOSE-UP RADAR VIEW REVEALS INTERESTING OBJECTS (IN PURPLE), ACTIVE BIOTS (IN GREEN), AND FELLOW *NEWTON* TEAM MEMBERS (NUMBERED IN WHITE).

OK, now we can explore.

A quick reminder: Red dots on the Central Plains Radar Map mark interesting areas to visit, or areas where you'll find some biot activity. If a map area lights up when you move your cursor over it, you can click on the highlighted area to get a close-up radar view of that area. White numbered dots represent other members of your expedition.

Here are the crew's numerical designations:

You	002
Shigeru Takagishi	004
David Brown	005
Francesca Sabatini	006
Otto Heilmann	007
Michael O'Toole	008
Richard Wakefield	009
Reggie Wilson	010
Nicole des Jardins	012

Crab Biot Regions

Beware of crab biot formations! Crabs are mindless garbage collectors, sweeping the Central Plains and chopping up any debris in their path. And crabs define the word "debris" quite loosely—for example, *you* would qualify as debris.

If radar shows a crab biot formation—six green dots in a triangular "bowling pin" array (see Figure 2-3 below)—approaching your position:

- *Do not enter that region!*
- *Exit the close-up radar view immediately!* If you linger, the crabs corner you and engage in a rather joyless and bloody dissection.

FIGURE 2-3. RUN! IF YOUR RADAR SHOWS CRAB BIOTS APPROACHING, EXIT THE CLOSE-UP IMMEDIATELY ... OR END UP AS RAMAN ROADKILL.

Death is always unpleasant. But *RAMA* is a forgiving game. Remember this Johnny Cochran-like refrain: *If you die, you can retry.* The Retry feature puts you right back where you were before you made the fateful move.

Centipede Biot Regions

Centipede biots roam through various regions of the Central Plains. Unlike its crab cousin, a centipede biot is harmless. But a few of these mechanical creatures carry items that they'll drop. You need one of those items.

- On the Central Plains Radar Map, click on regions for close-up views until you find one with a centipede biot. Centipedes are represented by four green dots moving in single file (see Figure 2-4 below).

- Enter that region.

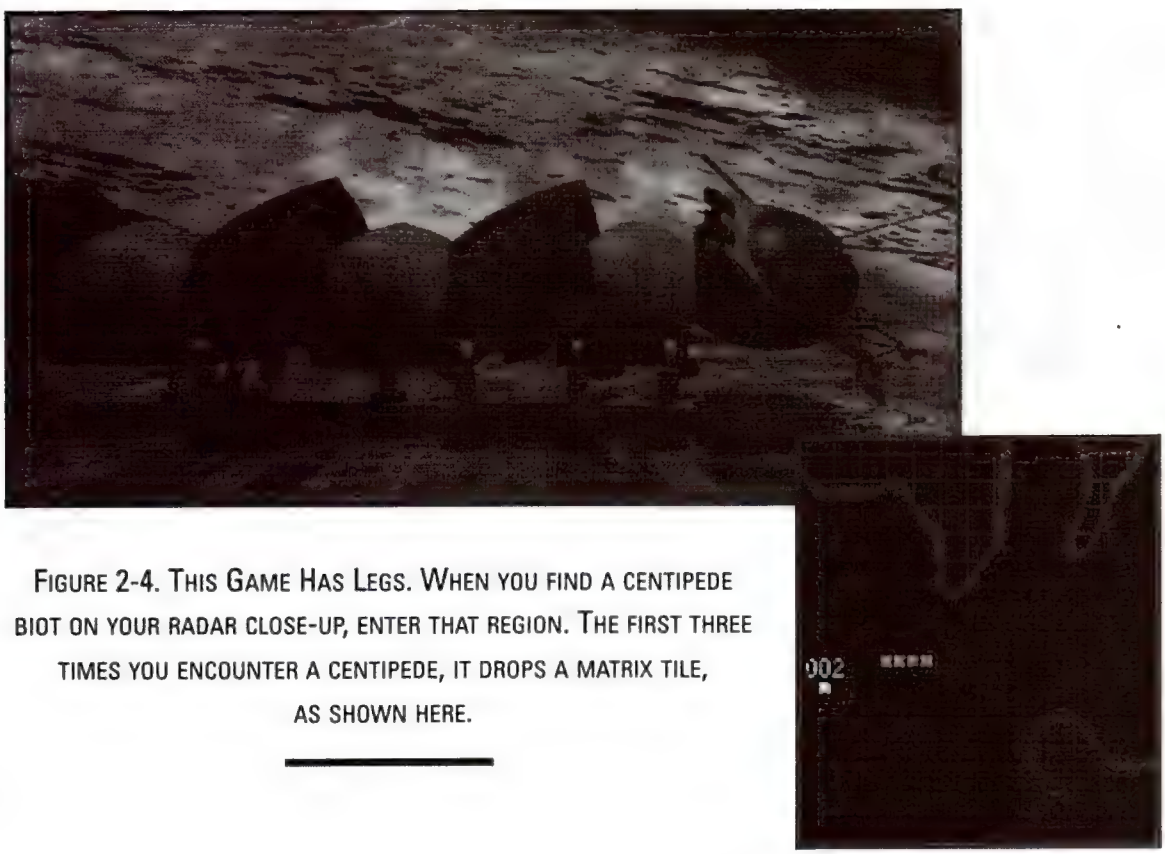


FIGURE 2-4. THIS GAME HAS LEGS. WHEN YOU FIND A CENTIPEDE BIOT ON YOUR RADAR CLOSE-UP, ENTER THAT REGION. THE FIRST THREE TIMES YOU ENCOUNTER A CENTIPEDE, IT DROPS A MATRIX TILE, AS SHOWN HERE.

- Watch the centipede. Note that it drops an object as it passes by.
- Pick up the item.
- Exit the region.
- Use your radar map to find at least two other regions with a centipede biot and repeat the previous steps.

Each of the first three times you encounter a centipede, the biot will drop a matrix tile. Only one of the pieces is useful (see Figure 2-5), but you should grab all three.

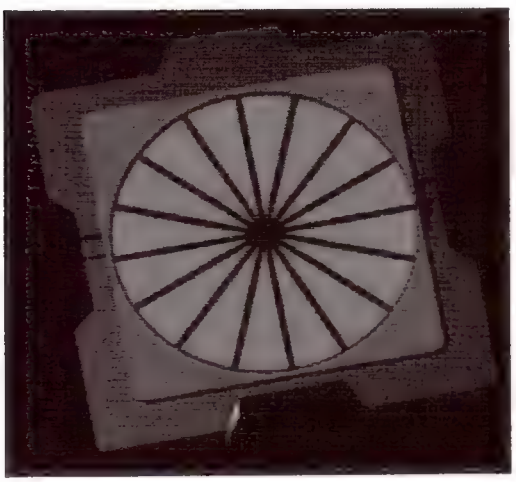


FIGURE 2-5. BIOT DROPPINGS. CENTIPEDE BIOTS DISCARD THREE MATRIX TILES IN THE CENTRAL PLAINS. ONLY THIS ONE IS USEFUL. LET'S CALL IT TILE L21.

As mentioned, the centipede biots drop three matrix tiles—one useful, two useless. If you don't pick up the useless tiles, they go into RAMA's garbage system—but that's OK, they're *useless*. If you neglect to grab the *useful* tile, however, Nicole des Jardins picks it up and gives it to you in a later encounter.

FIGURE 2-6. WHAT A GAL. IF YOU MISSED TILE L21 IN THE CENTIPEDE BIOT REGIONS, NICOLE FINDS IT AND OFFERS IT TO YOU LATER. IT JUST HAPPENS TO BE AN IMPORTANT ITEM.

Chapter 3
Beam Region/London

THE MOST EFFICIENT EXPLORATION PATTERN takes you from the Base Camp in a counterclockwise direction around the Central Plains Radar Map.

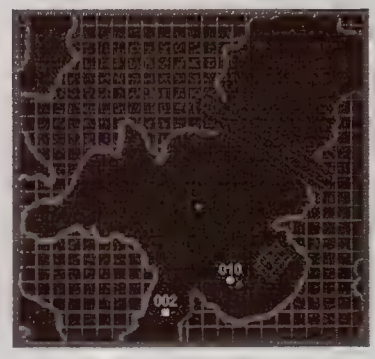
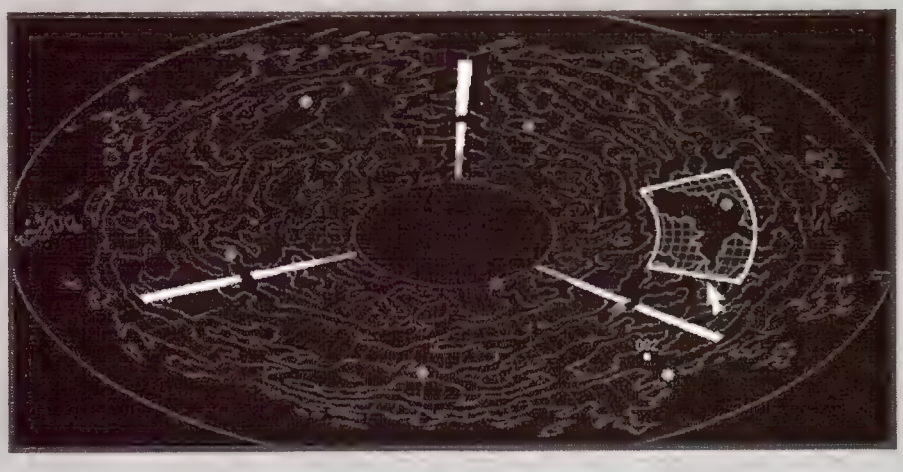


FIGURE 3-1. BEAM REGION. HERE ARE BOTH THE RADAR MAP OVERVIEW AND THE CLOSE-UP VIEW OF RAMA'S BEAM REGION. REGGIE WILSON'S PRESENCE IS INDICATED BY THE "010" IN THE CLOSE-UP VIEW.



Important: This walkthrough for the Beam Region and London assumes that this is your *first* visit to each location in the area. If it *isn't* your first visit, then matrix tiles, map puzzle pieces, and other important items that you failed to retrieve during previous visits may have been gathered by other astronauts or RAMA's trash collectors, the crab biots. If you have trouble finding certain items (especially matrix tiles) while consulting this walkthrough, check out chapter 6, "The RAMA Garbage Disposal System."

- On your radar map, travel to the region shown in Figure 3-1. After you arrive, move forward once.
- Turn right to face Reggie Wilson and the trash biot.
- Step forward to the trash biot and listen to Wilson.

Reggie points out what he calls a "trash biot" and describes what he knows of the RAMA garbage disposal system (for more details, see chapter 6, "The RAMA Garbage Disposal System"). He gives you a data cube with some crab biot footage and suggests you stay out of the crabs' way.

FIGURE 3-2. ISN'T TRASH FASCINATING? REGGIE THINKS SO, ANYWAY. TAKE HIS ADVICE ABOUT AVOIDING THE FRONT OF CRAB BIOT FORMATIONS. THEN TAKE A PEEK IN THAT RECTANGULAR BIN TO THE RIGHT OF REGGIE.

- Move forward to the trash bin just to the right of Reggie.
- Take the matrix tile from the bin.

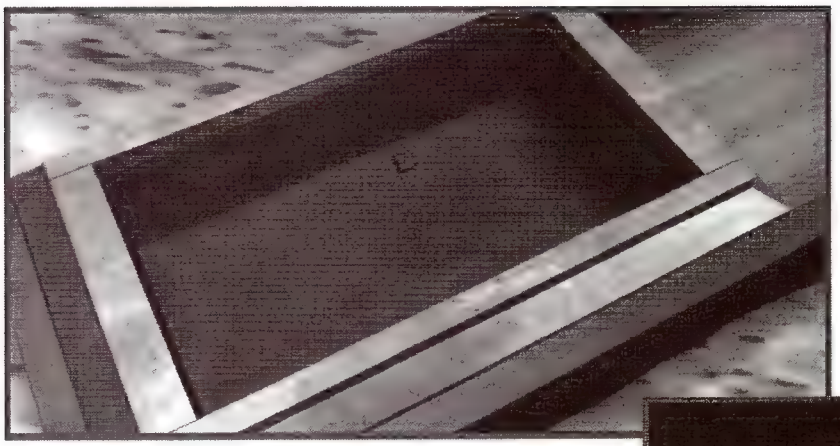
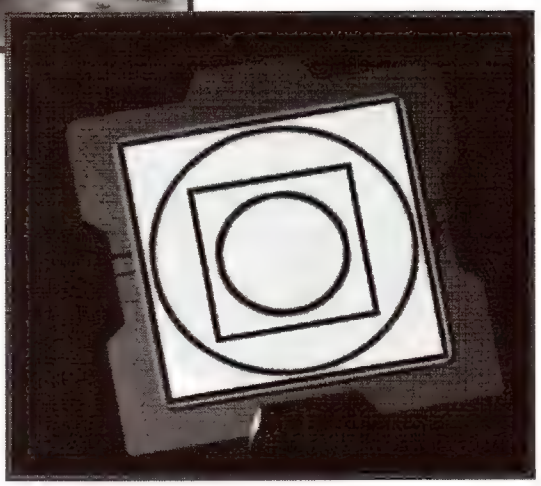


FIGURE 3-3. DUMPSTER DIGGING. NEVER LEAVE A TRASH BIN UNEXAMINED. GRAB THAT MATRIX TILE BEFORE IT GOES UNDERGROUND INTO THE RAMA GARBAGE SYSTEM.



- Back away from the bin and turn left.
- Pick up the matrix tile sitting on the embankment.
- Turn left again and go forward.
- Pick up the map puzzle piece.
- Move forward to the plastic cube. Note the matrix tile embedded in the cube.
- Pick up the map puzzle piece down by the base of the cube.

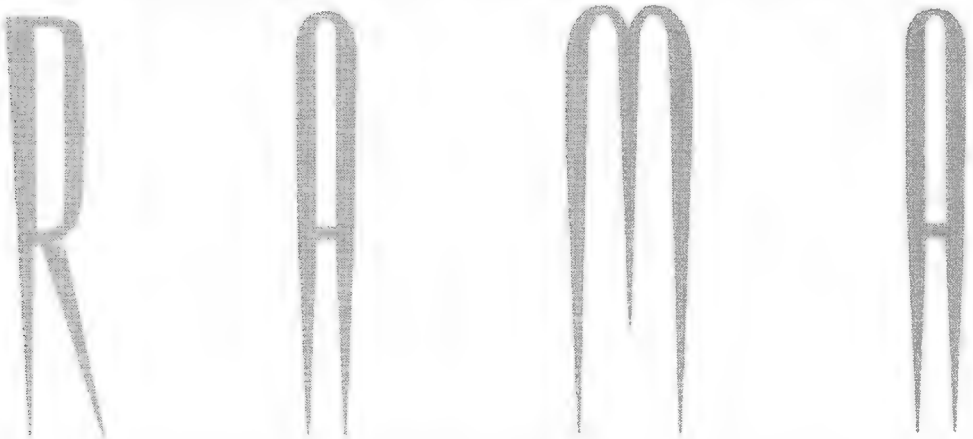


FIGURE 3-4. RAMA CUBED. YOU CAN'T GET THE EMBEDDED TILE YET, BUT GRAB THAT MAP PUZZLE PIECE LEANING ON THE BASE.

- Turn left and pick up the matrix tile (right side of screen).

We'll call this particular item Tile L31. Why? Hey, I'm a professional. Trust me.

- Turn left again.
- Move forward once, toward the trash biot.
- Turn left to face the huge beam half-buried in the hillside.
- Go forward, right, forward to see the biot hangar.

Biot Hangar Area

- Turn right to face the shattered red glass dome.
- Pick up the shard of red glass.
- Turn left and go forward to the hangar mouth.
- Pick up the concave lens.

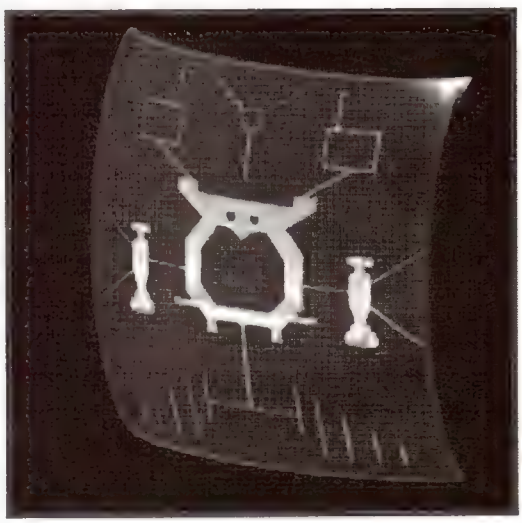


FIGURE 3-5. BIOT HANGAR AREA. TAKE A RED SHARD FROM THAT BROKEN DOME (IT'S NEAR THE BOTTOM RIGHT OF THE SCREEN), THEN GRAB THE CONCAVE LENS NEAR THE HANGAR'S MOUTH.

If you examine the optical lens in the inventory, you'll note that it has the same gold etchings as the lens you found in Otto Heilmann's locker.

If you don't pick up the concave optical lens the first time you see it, and then leave the region, a fellow astronaut will pick it up and place it in the Base Camp refrigerator.

Now you can explore the biot hangar, if you want. Aside from assorted centipedes, crabs, and other species of inert biots, you'll find an active spider biot pacing menacingly in a cage. You'll be back later. But for now, there's nothing to do here.

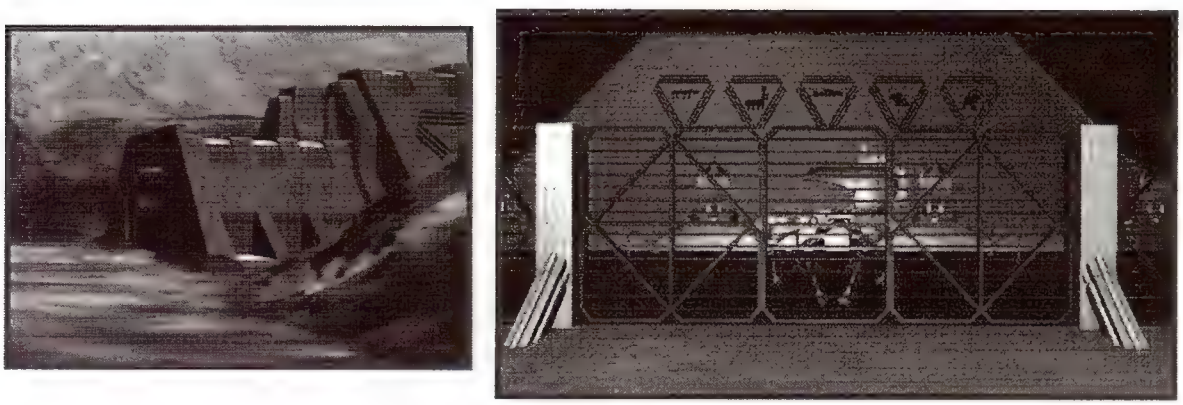


FIGURE 3-6. BIOT HANGAR. NONE OF THE CREATURES IN HERE LOOK PARTICULARLY FRIENDLY ... BUT THAT SPIDER BIOT IN THE CAGE SEEMS PARTICULARLY HOSTILE.

- Exit the hangar area, moving past the broken red dome.

If you missed Tile L21 (See Figure 2-5 in chapter 2) in one of the centipede biot regions, then, on your second visit to the Biot's hangar, Nicole des Jardins will appear here and give that tile to you.

- Turn right to face the huge beam.
- Move forward under the beam.
- Turn left and pick up the matrix tile.
- Turn right and continue forward until you return to the Central Plains Radar Map.

Central Plains Radar Map

- Click on the region just to the right of the radius at the top of the screen (see Figure 3-7).
- Click on the close-up radar view to enter the region.

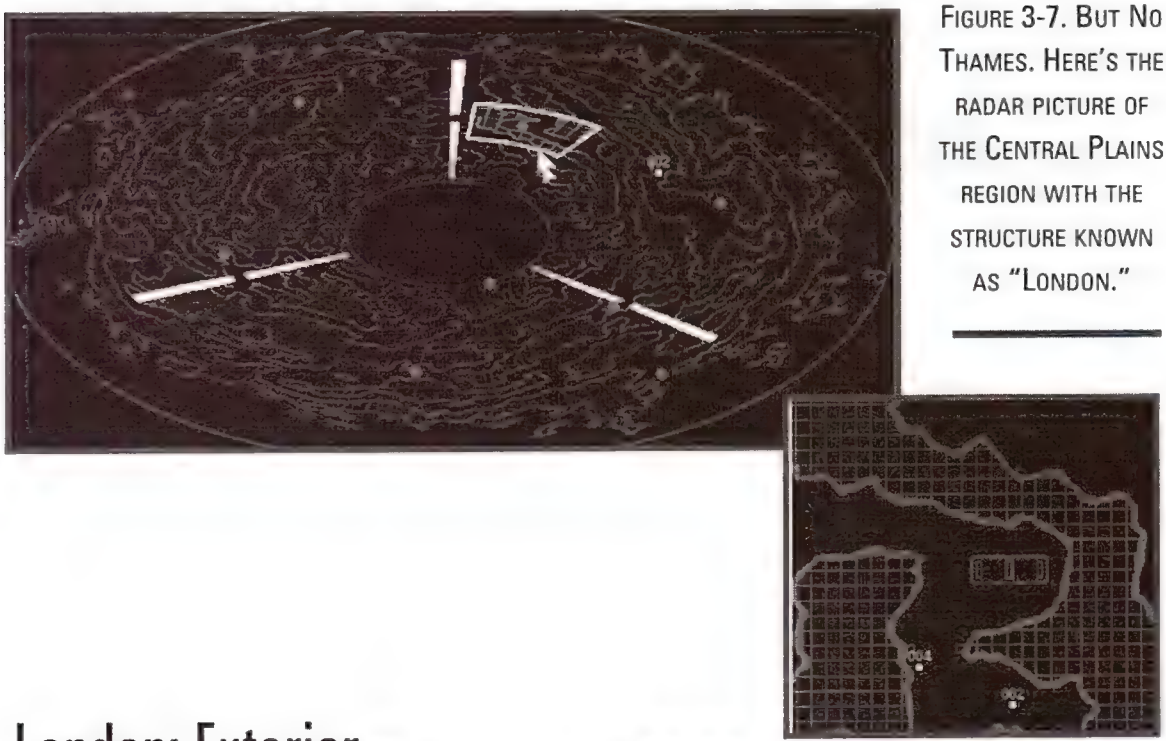


FIGURE 3-7. BUT NO THAMES. HERE'S THE RADAR PICTURE OF THE CENTRAL PLAINS REGION WITH THE STRUCTURE KNOWN AS "LONDON."

London: Exterior

You arrive in this region facing a huge structure. It rises behind a pulsing blue force field. Doctor Takagishi stands to the left of the force field, studying its patterns.

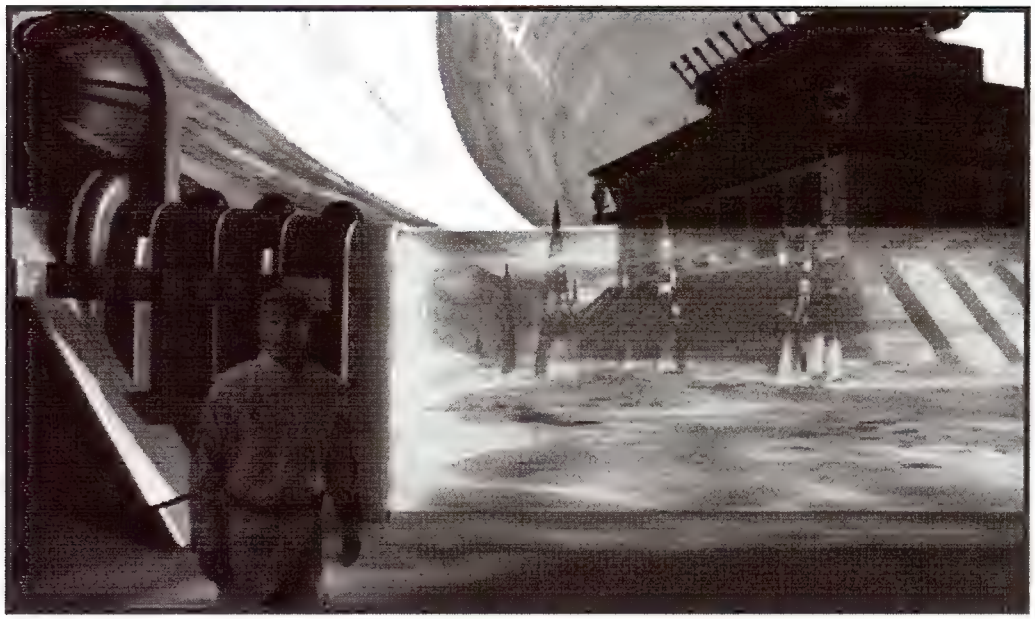


FIGURE 3-8. PULSE CHECK. DR. TAKAGISHI SEES A PATTERN TO THE PULSING OF THE FORCE FIELD. DO YOU?

- Step forward to the force field.
- Listen to Dr. Takagishi's analysis of the situation.
- Step through the force field during the long pause (see the Tip).
- Turn left to face the switch box.
- Pull down the switch to turn off the force field.
- Pick up one matrix tile and two map puzzle pieces on the ground near the switch box.

Tip

Watch the force field for a few moments. The pulsing of the field follows a pattern. Note that there is one particularly long pause. This repeats after every nine pulses. Wait until the ninth pulse, then step through the barrier during the long pause.

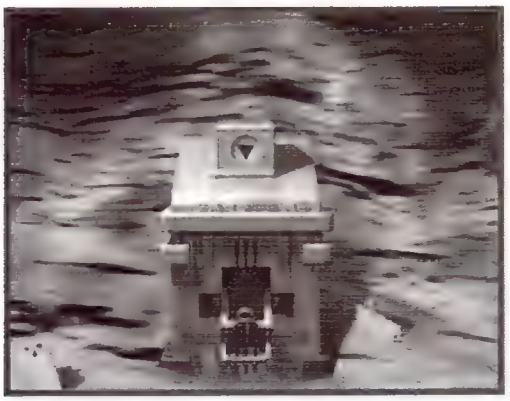


FIGURE 3-9. FORCE FIELD SWITCH. TURN OFF THE FORCE FIELD AND GRAB THE THREE OBJECTS SCATTERED AROUND THE SWITCH BOX.

If you exit the region without picking up these three items from the ground near the switch box, all three move to the specimen tray at the Base Camp.

Before you go, examine the switch box carefully. See that small block on top? Notice the recessed triangle shape. Do you suppose something *triangular* plugs into that?

- Turn right twice and move forward to the entrance of the structure.
- Click on the podium at the right of the entry door—it's marked with a red glyph. A matrix puzzle appears. Let's call it London Matrix Puzzle #1.

Matrix Puzzle #1 Solution (First Tier Entry)

To solve this puzzle, you must place one of your tiles in the missing slot to complete the matrix. You have a few similar tiles, so the key is to discern the patterns in each row.

This first matrix puzzle is fairly easy to solve, but the explanation of the puzzle logic is lengthy and, well, tedious. So if you want the quick solution without all the verbiage, just jump ahead to Figure 3-10.

To solve the puzzle, note the following elements:

1. The shapes match in the vertical columns. So the missing shape must be a pentagon.

2. The colors match in the horizontal rows. So the missing piece must be half-yellow and half-green.

3. In each horizontal row, the tips of the pentagon and triangle point in the same direction. Since the triangle in the middle row points to the right, the pentagon in the missing slot must point to the right.

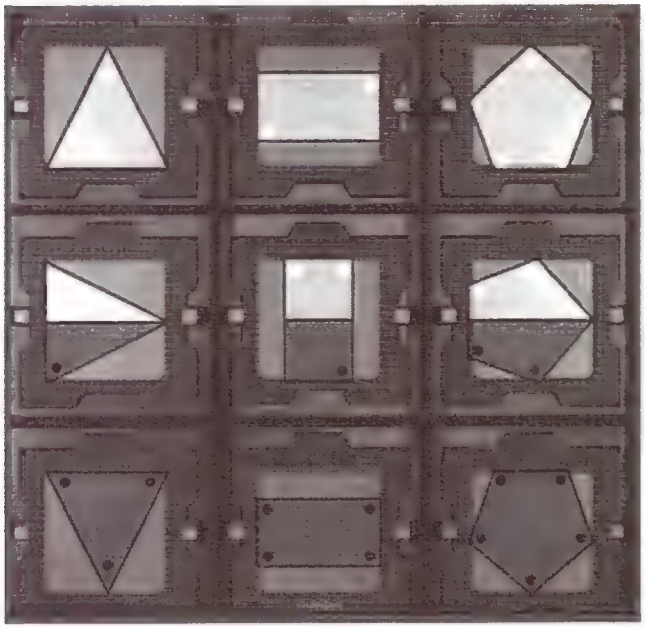
4. The dot colors match in each horizontal row. So the dots in the missing piece must be white in the yellow (top) half, black in the green (bottom) half.

5. The number of dots in the shapes increases by one from top to bottom in each row. The row with the missing shape has a pentagon with three dots at the top, and one with five dots on the bottom. So the missing pentagon in the middle must have four dots.

Using all this information, you can deduce that the missing piece must be a pentagon whose top half is yellow and bottom half is green. The tip of the pentagon must point to the right. The pentagon has four dots, white in the yellow half, black in the green half.

- Place Tile L11 (shown in Figure 3-10) into the empty slot in London Matrix Puzzle #1. This solution tile is the one you found in Francesca's locker 6 up at the Hub Camp.

- Enter the now-open doorway.



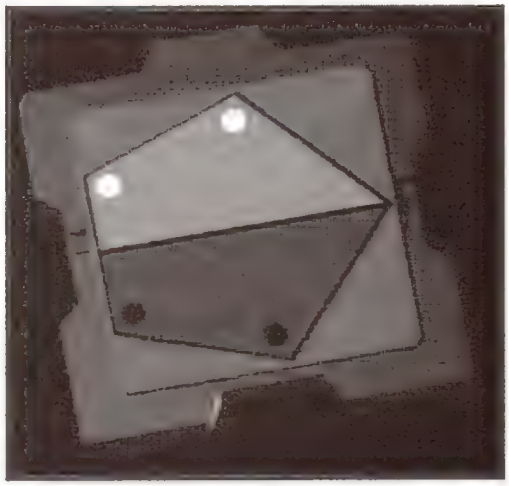


FIGURE 3-10. MATRIX SOLUTION FOR ENTRY TO LONDON, FIRST TIER

If you place a wrong piece *twice* in London Matrix Puzzle #1, the matrix changes to another puzzle—let's call it London Matrix Puzzle #2. This puzzle is originally set inside London, next to the entry door to the second tier. London Matrix Puzzle #2 requires *two* solution tiles (see Figure 3-14). You already have one (L21), dropped by a centipede biot (or, if you missed it then, given to you by Nicole des Jardins). The other solution tile (L22) begins the game inside London's first tier—where you can't get it, obviously. But if you activate London Matrix Puzzle #2 at the first tier entry door, the game moves the other solution tile to the specimen tray back at Base Camp.

However, save yourself a trip. Just use any wrong piece twice in London Matrix Puzzle #2. Puzzle #1 reappears, and the game moves the Tile L22 from the Base Camp specimen tray back into London's first tier.

One other note: If you place *one* correct solution tile into London Matrix Puzzle #2, then two *wrong* tiles—this still triggers the reappearance of London Matrix Puzzle #1. However, the correctly placed tile will remain in London Matrix Puzzle #2 … and will be there whenever you access Puzzle #2 again, whether here at London's first entry door or at the second entry door inside. And by the way, if you followed everything I just said, I'm pretty sure they'll let you into Harvard without taking the SAT.

London: First Tier

- Go forward and pick up the matrix tile and the map puzzle piece on the entry ramp.
- Turn around to face the exit.
- Pick up another map puzzle piece.
- Turn back around, then step forward into the center of the room.

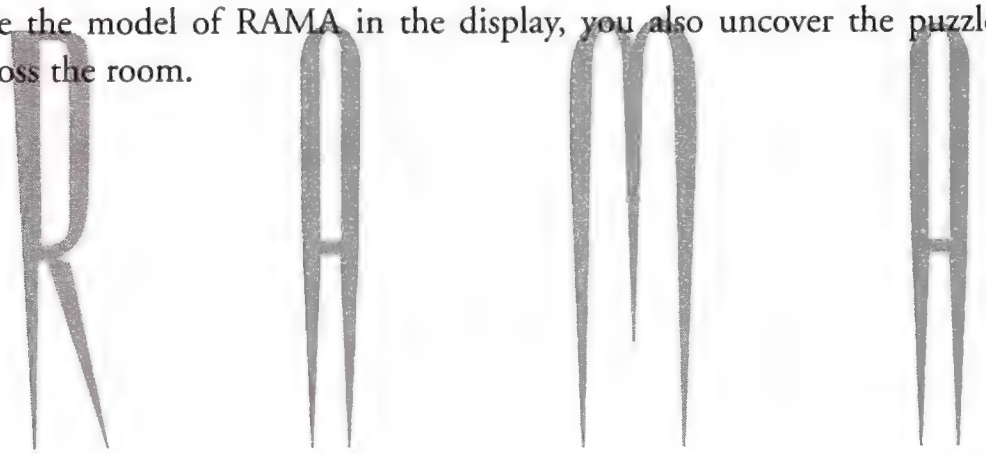
You are now in the first tier of RAMA's London structure. Straight ahead lies the door to the second tier of London. To the left is a display of some sort, and to the right are two covered puzzle boards. Behind you lies the exit from the structure.

- Go forward to the door to the second tier.
- Pick up the two map puzzle pieces.
- Turn around to face the center of the room.
- Go forward once.
- Pick up the matrix tile from the floor at far left.
- Turn right to face the display.
- Pick up the map puzzle piece and the matrix tile, which we'll call L22 (This tile may not be here; see the note on the previous page.)
- Click on the RAMA display for a close-up view. The display's control panel with multicolor buttons is in the center of the screen.

- Push the triangular purple button (top of control panel) to activate the RAMA display.
- Press the yellow button to set the RAMA model in orbit.

FIGURE 3-11. RAMA ON DISPLAY. THIS CONTROL PANEL ACTIVATES THE COMPONENTS OF A VISUAL DISPLAY DEPICTING RAMA'S SYSTEMS AND CELESTIAL COURSE. PUSH THE YELLOW BUTTON TO UNCOVER THE MAP PUZZLE BOARDS ACROSS THE ROOM.

Hear that noise in the background? When you press the yellow button to activate the model of RAMA in the display, you also uncover the puzzle boards across the room.



- Optional: Press each of the five green buttons on the left side of the panel for a series of visual depictions of RAMA's operating systems.
- Optional: Press the oblong purple button on the right side of the panel to set in motion the solar system model.
- Back away from the display.
- Turn twice in either direction to face the now-uncovered map puzzle boards.

Note that there are six slots in each puzzle board. Your job is to put together the two maps—one of the Central Plains, and one of New York, the island city in the Cylindrical Sea that wraps around the center of RAMA's cylinder—using the map puzzle pieces you've collected. (If you've been meticulous, you should have twelve pieces, six for each puzzle board.) Each map can be assembled on either of the two puzzle boards.

Tip

You can move the map pieces as much as you want after placing them on the puzzle board. The New York map is easy, but the Central Plains map is tougher, so it's easiest to put all six pieces on the board before you manipulate them.

- Assemble the map of New York on either puzzle board (see Figure 3-12).

FIGURE 3-12. NEW YORK, NEW YORK. HERE'S THE NEW YORK MAP ASSEMBLED. NOTE THAT MAZE CONNECTING THE PLAZAS!

When you finish, watch the map transform. Note how the medallion in the upper left corner lights up. It seems to indicate that the medallion provides some sort of access at the far

west end of the island. Note also that you can click on the three blue "plazas" on the map and bring up a view of each, and that the plazas are connected by a simple maze.

- Assemble the map of the Central Plains on the remaining puzzle board (see Figure 3-13). Again, after you complete the puzzle, you can click on various locations to bring up pictures of those locations.

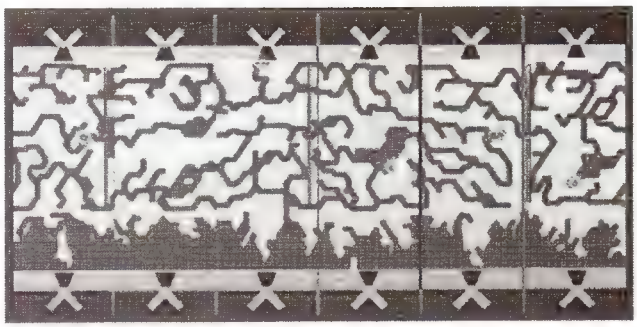


FIGURE 3-13. CENTRAL PLAINS MAP. HERE'S THE CENTRAL PLAINS MAP ASSEMBLED.

- Back away from the map and turn left.
- Go forward to the door to the second tier.
- Click on the podium at the right of the entry door—again, it's marked with a red glyph.

Matrix Puzzle #2 Solution (Second Tier Entry)

If you're following this walkthrough, you should see London Matrix Puzzle #2 as shown in Figure 3-14. But it is possible that you solved this puzzle back at the exterior door to London. In that case, you'll see London Matrix Puzzle #1 here, and the solution is back at Figure 3-10.

Again, if you want the solution without the puzzle logic, jump down to Figure 3-14 and skip the numbered series that follows.

Once again, recognize the patterns in each row of shapes to deduce which tiles to place in the two empty slots. In this case, each tile has outer "layers" of geometric shapes and one inner region divided into sections.

1. The number of sections in the shapes' inner region *doubles* as you move from tile to tile in each horizontal row from left to right, and it also *doubles* as you move from tile to tile up each vertical row from bottom to top.

2. The number of inner regions in the top row shapes, from left to right, goes 4, 8, __. So the missing tile in the top row must have an inner region of 16 sections.

3. The number of inner regions in the bottom row goes 1, __, 4. So the missing tile in the bottom row must have an inner region of 2 sections.

4. The number of outer layers of each shape *decreases by one* as you move from tile to tile in each horizontal row from left to right, and it also *decreases by one* as you move from tile to tile from the bottom to the top in each vertical row.

5. The number of outer layers in the top row shapes, from left to right, goes 2, 1, __. So the missing tile in the top row must have no outer layer.

6. The number of outer layers in the bottom row shapes, from left to right, goes 4, __, 2. So the missing tile in the bottom row must have 3 outer layers.

So the missing tile in the top row must have an inner region with 16 sections and no outer layers. The missing tile in the bottom row must have 2 inner regions and 3 outer layers.

- Place Tile L21 into the empty slot in the *top row* of the matrix as shown in Figure 3-14.

This tile was dropped by a centipede biot. If you missed it in the centipede biot regions, Nicole des Jardins handed it to you outside the biot hanger in the Beam Region.

- Place Tile L22 into the empty slot in the *bottom row* of the matrix as shown in Figure 3-14. This is the tile you just picked up in front of the RAMA display across the room (or found in the specimen tray, if you're solving this puzzle at London's First Tier entrance.)

- Enter the now-open doorway.

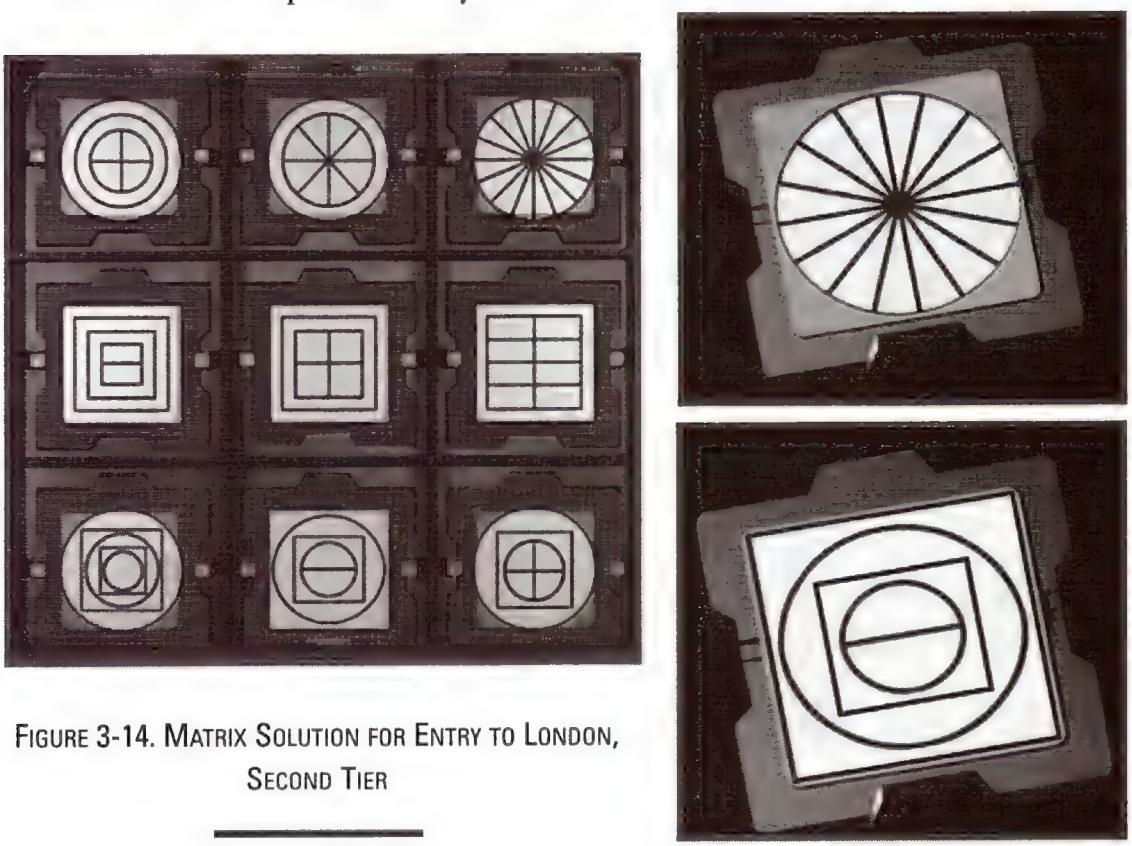


FIGURE 3-14. MATRIX SOLUTION FOR ENTRY TO LONDON, SECOND TIER

London: Second Tier (Trash Pit)

The second tier of London is a huge garbage-processing facility. When RAMA's trash collectors (crabs, etc.) dump garbage into the bins by the trash biots in the Central Plain, the garbage travels along underground conveyor tubes and ends up here.

- Move forward to the ledge.
- Look down to get an overview of the trash pit.

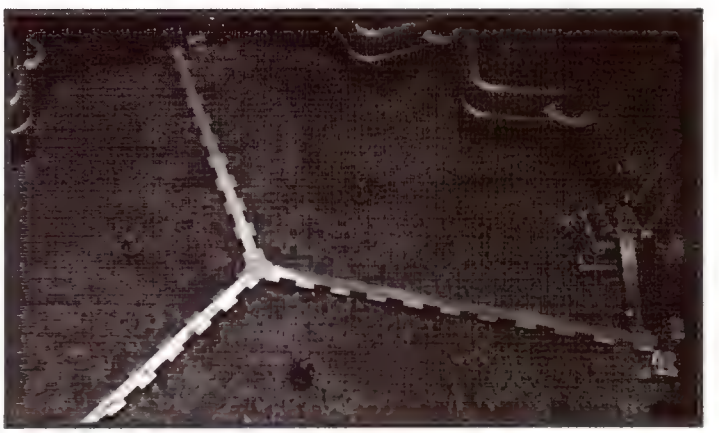


FIGURE 3-15. LONDON TRASH PIT. BOY, THAT'S A LOT OF GUNK. HOW DO YOU GET DOWN THERE?

Some kind of blue gunk fills the massive circular pit. In usual Raman fashion, three walkways split the circle into three sections. (The famous last line of Arthur C. Clarke's first Rama novel, *Rendezvous With Rama*, reads: "The Ramans do everything in threes.") At the far right, you can see a ramp leading down to the walkways from an elevator.

- Turn around and take one step toward the door.
- Turn right and go forward to the wall.
- Turn right again and pick up the matrix tile in the lower right corner.

Go forward and observe trash packets arriving via the conveyor tubes from the regional trash biots. To your left is the doorway to London's third tier. You can click on the marked podium and examine London Matrix Puzzle #3 if you want, but you don't have all the solution tiles yet.

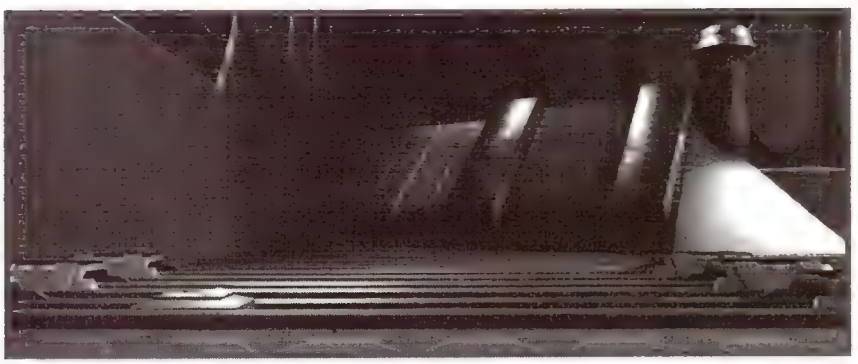


FIGURE 3-16. GARBAGE IN, GARBAGE OUT. HERE'S WHERE THE TRASH ARRIVES AFTER TRAVELING UNDERGROUND FROM THE TRASH BIOTS.

- Follow the elevated platform around to the other side of the trash pit.
- Observe the mantis biot operate the pit elevator.

Did you notice how the mantis biot summoned the elevator? It shot a beam of red light at the elevator call panel. When the elevator arrived, the mantis boarded and shot another beam of red light at the elevator control panel. Can you mimic that activity? *Hell, yes!* But first, let's finish exploring the elevated platform. A very important item lies just ahead.

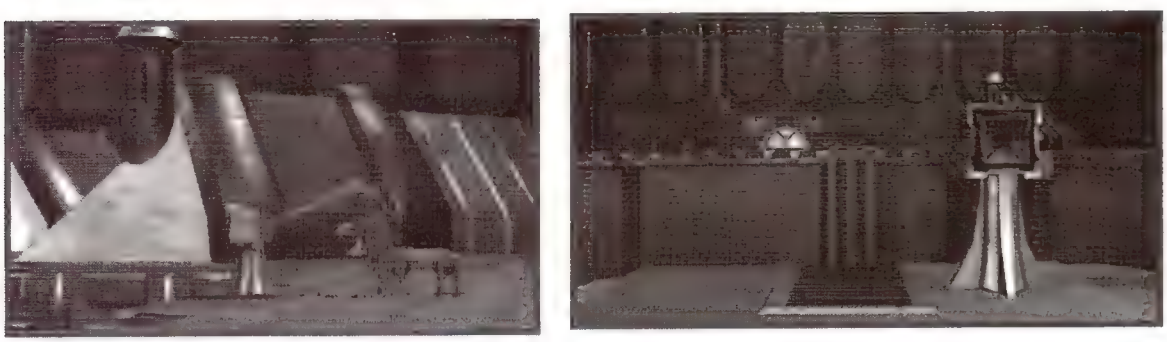


FIGURE 3-17. MIMIC THAT MANTIS. WATCH THE MANTIS BIOT SUMMON THE TRASH PIT ELEVATOR. THEN EXAMINE THE CALL PANEL. WHERE CAN YOU GET A NICE RED BEAM OF LIGHT?

- After the elevator with the mantis biot drops out of sight, move forward twice to the wall.
- Take the box.
- Examine the box closely—that is, click it on the three "Raman eyes" on your interface.
- Rotate the box 180 degrees to see its back side.

FIGURE 3-18. LOCKBOX. LOOK AT THAT PLUG. HAVE YOU SEEN ANYTHING TO MATCH THAT?

Aha! A triangular plug protrudes from the box's back side. Remember the force field switch box outside the London structure, where you met Takagishi? The one with the recessed triangle on top? Let's go there now and check it out.

- Exit the building.

London: Exterior

- Go forward to the switch box.
- Plug the lockbox into the top of the switch box. The lockbox opens.
- Take out the matrix tile (which we'll label B32).

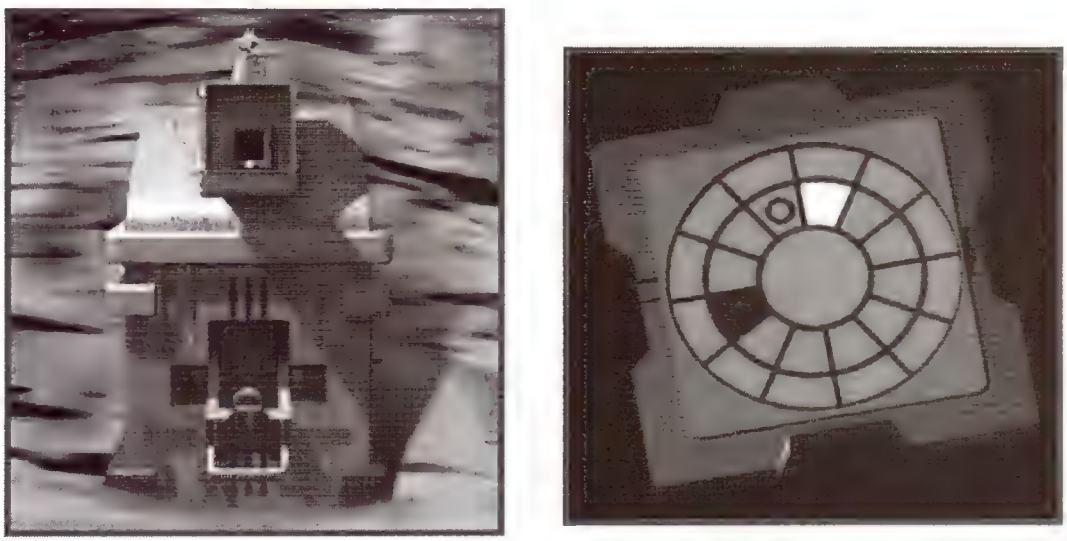


FIGURE 3-19. TILE IN A BOX. SINCE IT'S HIDDEN IN A LOCKBOX, YOU CAN BET THIS MATRIX TILE IS IMPORTANT.

- Return to the second tier of London.

London: Second Tier

Now let's do a mantis imitation. You need your handy ISA multi-tool and the red glass shard that you found just outside the biot hangar back in the Beam Region.

- Approach the elevator call panel for a close-up view.
- Take your ISA multi-tool from inventory.
- Click it on the "Raman eyes" to examine it more closely.
- Press the button on top of the ISA multi-tool until you activate its flashlight.
- Put the ISA multi-tool/flashlight back in your inventory box.
- In inventory, combine the "red shard" with the "ISA multi-tool" to create a red light.
- Use the red-filtered flashlight on the elevator call box in the close-up.

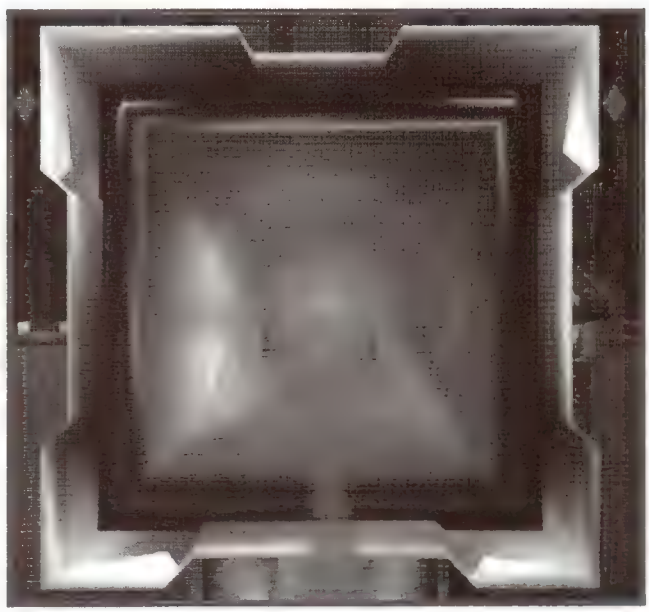


FIGURE 3-20. PUT ON YOUR RED LIGHT. CREATE A RED LIGHT, SHINE IT ON THE ELEVATOR CALL BOX, AND HOP ON BOARD.

- After the elevator arrives, back away from the call box.
- Board the elevator.
- Use the red-filtered flashlight on the square sensor in the elevator control panel.
- Ride the elevator down into the trash pit.

Trash Pit

- When the elevator stops, turn left.
- Walk down the ramp to the pit walkway.
- At the ramp's bottom, pluck the matrix tile from the blue gunk of the pit.

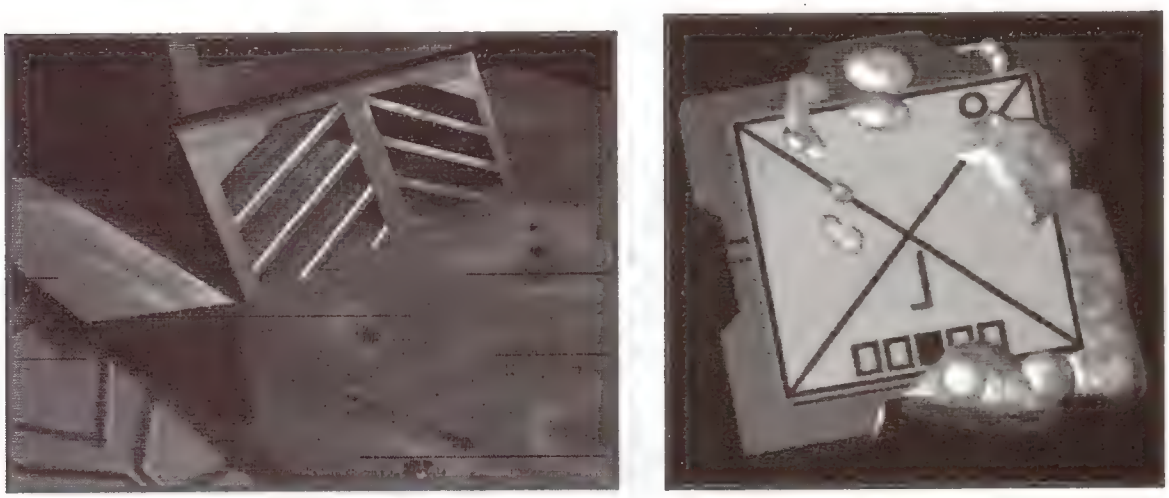


FIGURE 3-21. GUNKED JUNK. HERE'S WHERE ALL THE RAMAN GARBAGE ENDS UP. GUNKED TILES LIKE THIS ONE ARE USELESS UNTIL CLEANED.

If you examine the tile in close-up view, notice it's covered with the blue pit gunk. This gunk renders puzzle tiles inoperative. But don't worry, we'll clean them later. For now, just pop everything you find, gunky or not, into inventory.

- Turn right to face across the pit.
- Follow the first walkway to the center of the pit.
- Turn left and follow the second walkway to the wall.
- At the wall, turn right.
- Pluck the matrix tile from the gunk. We'll call this tile B21.
- Turn right and follow the walkway back to the pit center.
- Turn left and follow the third walkway to the wall.
- Turn right and pluck the two matrix tiles from the pit gunk.
- Turn right again. See that matrix tile? We'll call it Tile L32. Grab it!

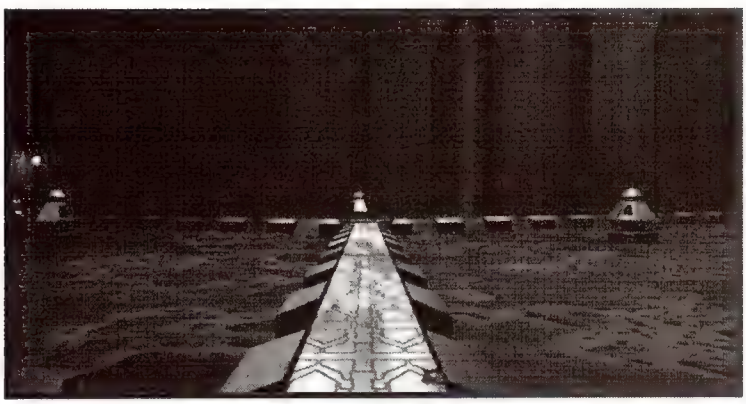


FIGURE 3-22. CRITICAL TILE. DON'T MISS TILE L32 WHEN YOU TURN AROUND ON THE PIT WALKWAY TO THE RIGHT OF THE ELEVATOR.

- Go forward, left, forward, left, then climb the ramp to the elevator.
- Use the red-filtered flashlight on the control panel again.

London: Second Tier

- After the elevator stops rising, turn and step off the elevator.
- Follow the raised platform around to the locked door on the opposite side of the pit.

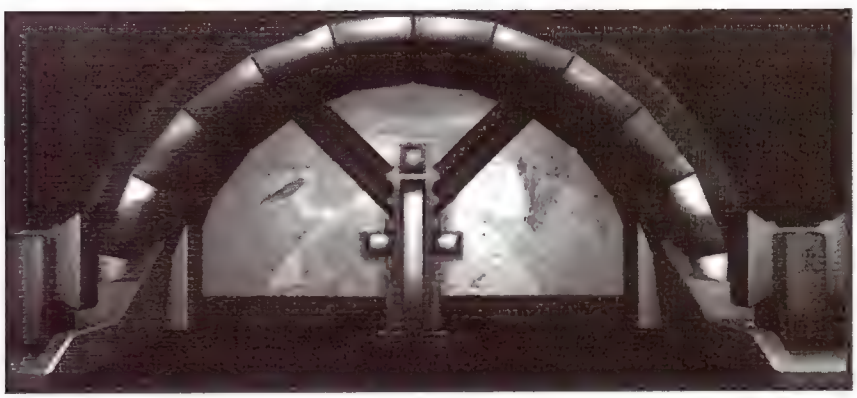


FIGURE 3-23. DOOR TO THIRD TIER. THIS PASSAGE LEADS TO THE FINAL LEVEL OF LONDON.

- Click on the red-marked podium at the right of the entry door.

Matrix Puzzle #3 Solution (Third Tier Entry)

As at the door to London's second tier, you need to place two tiles to solve the matrix puzzle. You have many tiles that are very similar, but as always, the key is to discern the patterns in each row.

If you don't see the puzzle pictured in Figure 3-24 when you first open this podium, keep placing wrong tiles in the puzzles until the podium cycles to the Figure 3-24 puzzle. This London puzzle and three puzzles located in the other RAMA structure known as "Bangkok" (see chapter 5) rotate as a group of four—that is, if you place two wrong pieces in a puzzle, the podium cycles to the next puzzle, and so on until the first puzzle returns again.

In this case, note the following three things:

1. The black section progresses clockwise by one section per tile as you move across each row from left to right.

2. The white section progresses clockwise by one section per tile as you move down each row from top to bottom.

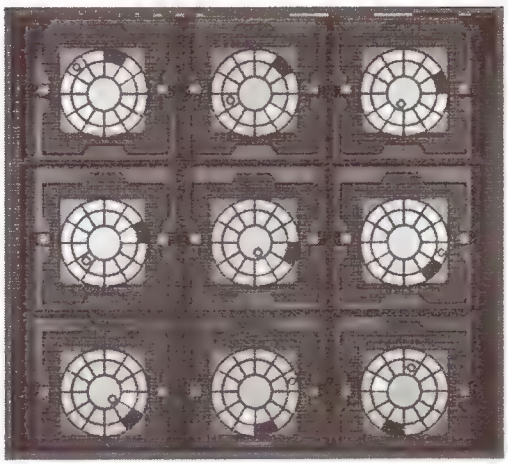
3. Each tile has a dot that appears in one of the tile's three concentric circles. In each row of three tiles, both vertical *and* horizontal, the dot appears in a different concentric circle for each tile.

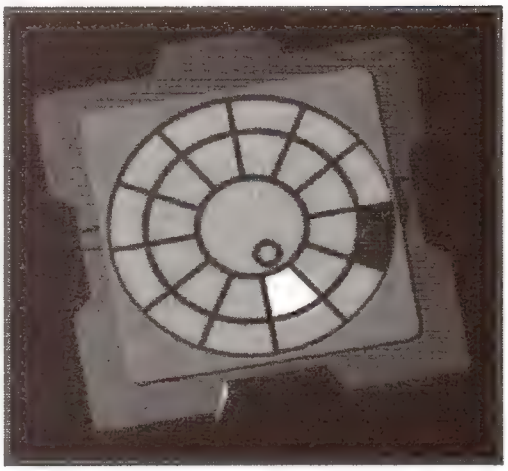
- Insert Tile L31 in the middle row of the matrix (see Figure 3-24). This is the tile you found back on the ground in the Beam Region, near that odd plastic cube.

Ah, but what if you *didn't* pick up Tile L31 back in the Beam Region? What if Tile L31 went into RAMA's garbage system? On a second visit to the Beam Region, you can still pluck Tile L31 from the bin by the trash biot. But if you miss it *again*, it ends up here in the blue gunk of London's trash pit. And now it won't work in the matrix puzzle until you "de-gunk" it. To de-gunk things, you must travel to the Wheel Region. (For details on the de-gunking process, see chapter 4.)

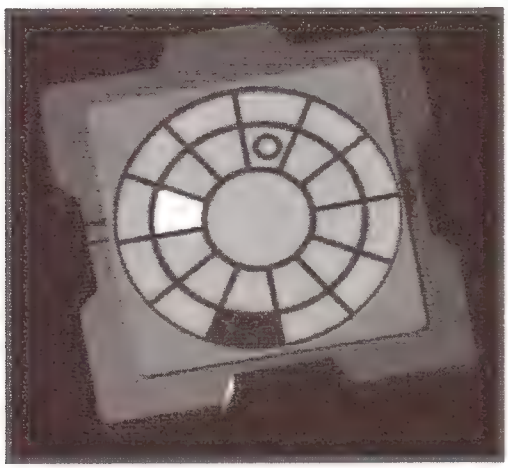
- Insert Tile L32 in the bottom row of the matrix (see Figure 3-24). This is the tile you just found on the walkway down in the trash pit.

- After the door opens, enter and follow the corridor to London's third tier.





L31



L32

FIGURE 3-24. MATRIX SOLUTION FOR ENTRY TO LONDON, THIRD TIER

London: Third Tier

By now, the primary purpose of London should be clear. Yes, it's a garbage-processing facility. But it's also a RAMA museum, with exhibits to display RAMA's various systems—including, as you see on the third tier, the biot functions. When you step out into the third tier, a centipede exhibit lies just ahead. To your right, you find crab and mantis exhibits.

- Optional: Step up to each of the three biot exhibits and activate them.

FIGURE 3-25. MOMA MEETS MIT. CEZANNE, GAUGUIN, MANTIS, CRAB ... HEY, ALL THE GOOD EXHIBITS ARE HERE.

The centipede is a RAMA repair biot, apparently. Note how it replaces one of the three "eyes" on the trash biot. The crab biot, as you already know, is a garbage collector. And the mantis is a construction biot; it seems to be welding together metal blocks in its demonstration.

- Just in case, SAVE YOUR GAME HERE!

- Approach the active spider biot ... *but don't touch it!*

FIGURE 3-26. DON'T CROSS SWORDS WITH SPIDERS ... UNLESS YOU'RE IMMORTAL. IF YOU TOUCH THIS ACTIVE SPIDER BIOT, YOU'RE DEAD MEAT. BUT YOU GET ONE OF THE BEST POST-DEATH SEQUENCES I'VE EVER SEEN—A FENCING DEMONSTRATION FROM THE MASTER HIMSELF. MY ADVICE: SAVE YOUR GAME FIRST, THEN TOUCH THE SPIDER.

You need to get past the spider biot and check out some stuff behind it. But you must deactivate the deadly creature first. If you tried and died, you saw Arthur C. Clarke himself suggest that you might need a crane. Perhaps you noticed the huge crane biot hovering above the spider?

- At the spider biot, turn left and climb the ramp.
- Continue along the top of the ramp to the laser gun.
- When you get behind the laser gun, click on it.

The laser fires, activating the crane biot, which then lifts the spider biot into the air. Now you can operate in that vicinity without fear of getting impaled.

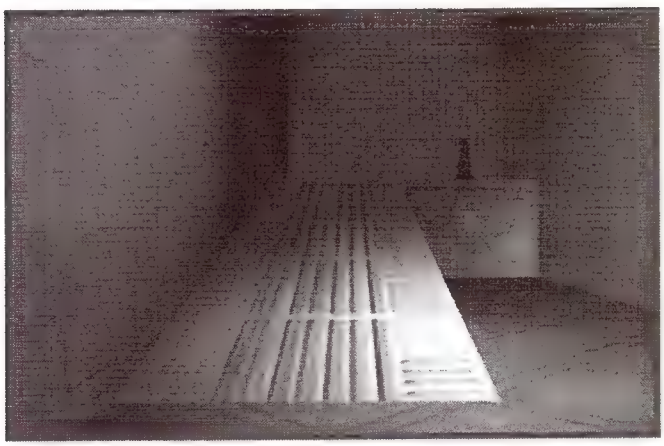


FIGURE 3-27. RAISING CRANE. CLIMB THE RAMP AND FIRE THE LASER GUN TO ACTIVATE THE CRANE BIOT. THE BIG GUY LIFTS THE PESKY SPIDER BIOT RIGHT OUT OF YOUR HAIR FOR A WHILE.

- Go back down the ramp to where the spider biot now hangs in the air.
- Grab the medallion.
- Click on the monitor for a close-up view.
- Pull down the switch to activate the monitor.
- Click on the monitor again for an even closer view.

What's that on the monitor? Something important, no doubt. OK, I'll tell you—it's the inside room of the big wheel mechanism in the Wheel Region. Of course, nobody expected *you* to know that, since you haven't been to the Wheel Region yet. (Or *have* you? You're not sneaking around RAMA behind my back, are you?) We'll get there in chapter 4.

By the way, you should probably examine that medallion more closely. Does it look familiar? It should. It's the same figure shown in the upper left corner of the New York map you assembled back in London's first tier.

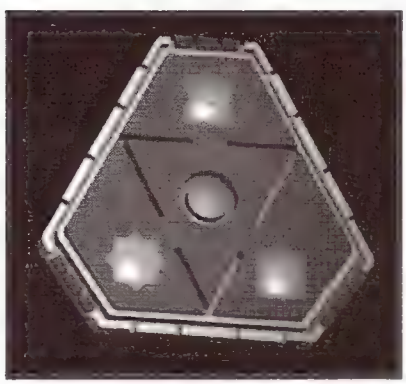
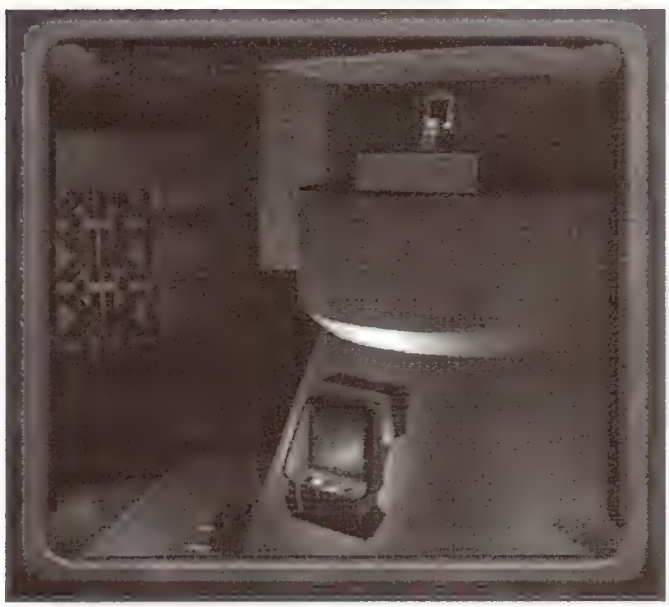


FIGURE 3-28. WEB SITE. OK, THERE'S NO WEB, PER SE. BUT THAT SPIDER WAS PROTECTING THAT MEDALLION, APPARENTLY. THE LOCATION IN THE MONITOR MUST BE SIGNIFICANT, TOO.



- Back away from the monitor and turn to face the center of the room.
- Step forward to trigger an appearance by a distressed Nicole des Jardins. She hands you a data cube.

Nicole has some bad news. During the *Newton* crew's attempt to snare a crab biot, Reggie Wilson got caught by one of the deadly creatures and was chopped to bits. The tragedy was captured live on video and transmitted back to a horrified Earth audience. Nicole hands you a data cube with Francesca Sabatini's telecast of the crab biot hunt ... and the gruesome accident.

- Load the new data cube into your wrist computer.
- View the telecast of the crab biot hunt.

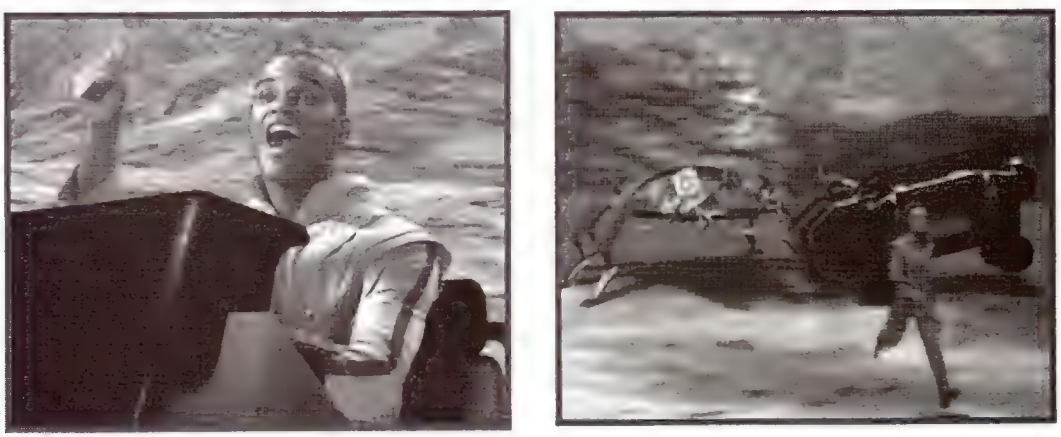


FIGURE 3-29. CRAB MEAT. NOTHING LIKE A LITTLE VIVISECTION, LIVE AND IN COLOR! FRANCESCA'S TELECAST OF REGGIE'S DOOMED HEROISM IS DRAMATIC ... BUT HOW WILL IT AFFECT THE MISSION?

- Exit London. When you step outside, notice the "RAMA quake" that shakes your screen.
- Listen to Richard Wakefield's report on the quake—which turns out to be a RAMA trajectory correction.
- Shortly after Wakefield's report, Dr. Brown appears with a follow-up report.

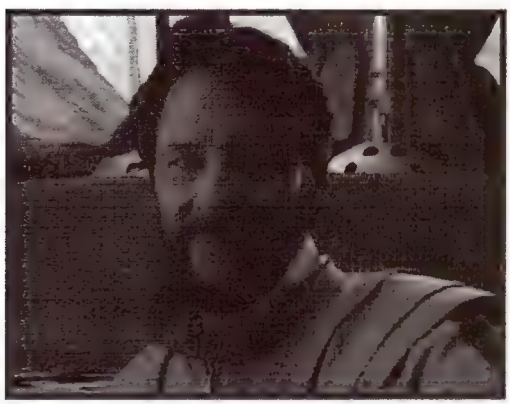
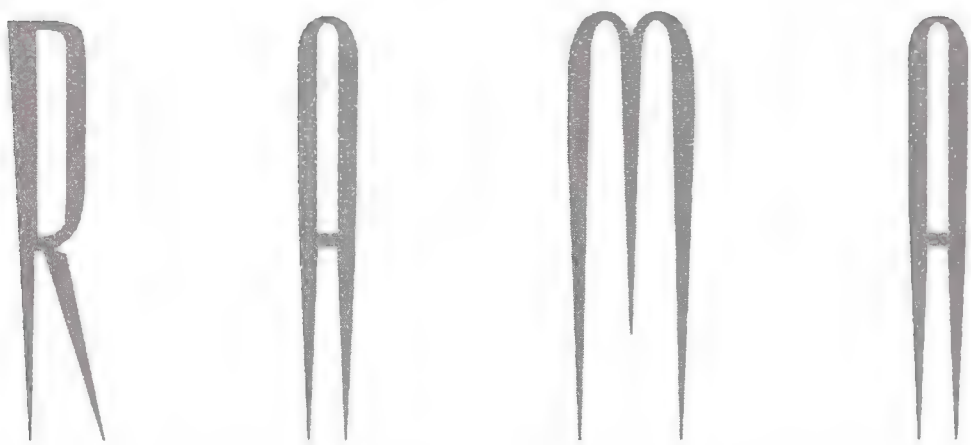
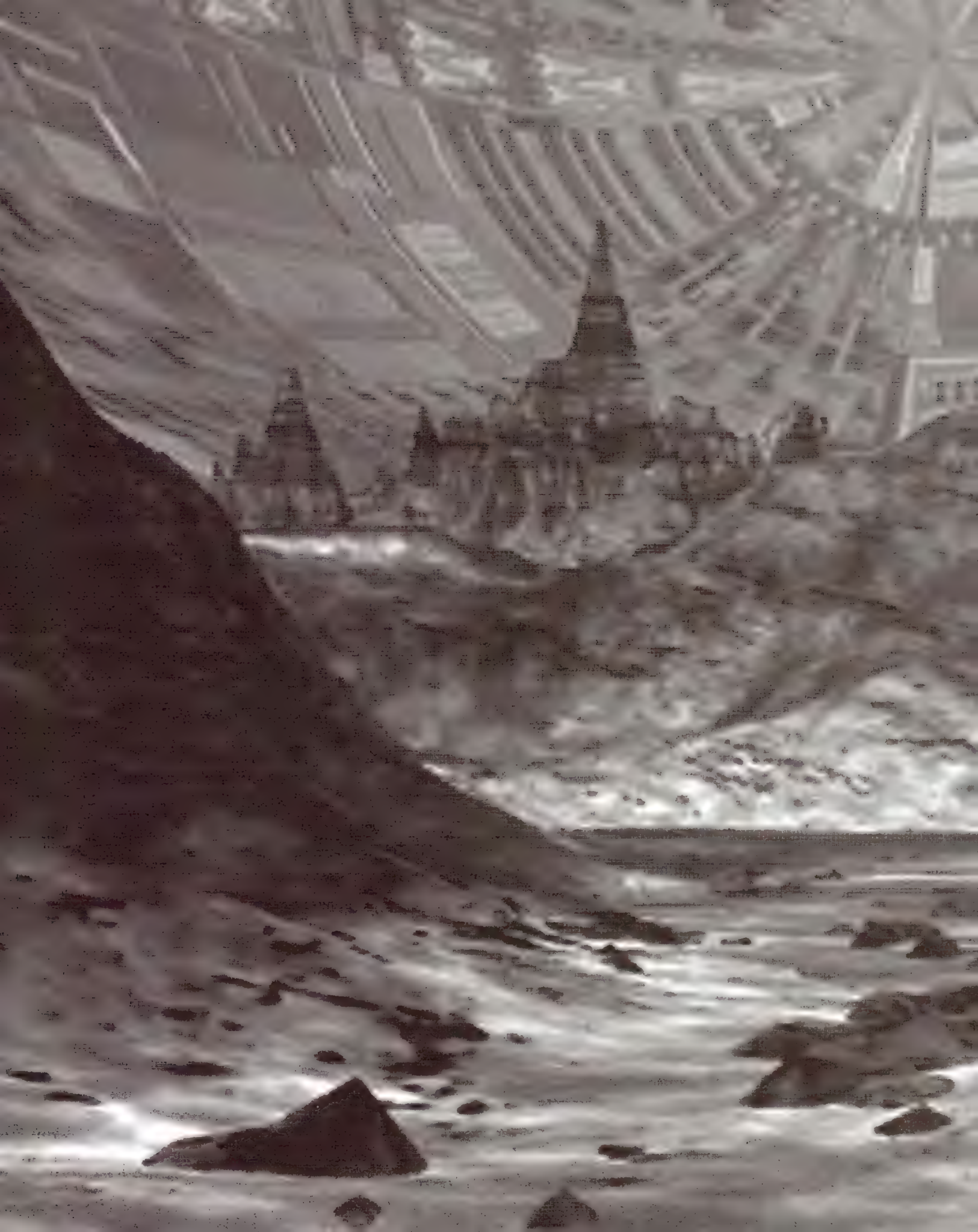


FIGURE 3-30. ALL SHOOK UP. RAMA'S "QUAKE" SHAKES UP THE CREW *AND* THE PLOT, WHICH THICKENS CONSIDERABLY. WAKEFIELD SURMISES THE QUAKE IS A TRAJECTORY MANEUVER; BROWN FOLLOWS UP WITH A DOUR CONFIRMATION.



It appears that RAMA's "correction maneuver" has put the alien spaceship on an impact course with Earth. Brown explains that such a collision would be more cataclysmic than the comet impact in the Yucatan Peninsula 65 million years ago—the one that blew a hole in the crust and wiped out the dinosaurs. Needless to say, the *Newton* mission is now in jeopardy. He suggests you gather as much data as possible.

- Exit the London Region to the Central Plains Radar Map.



Chapter 4
Wheel Region

THIS REGION FEATURES A NUMBER of interesting Raman devices. The area is dominated by a huge, mysterious wheel-like structure, accessible via ramp. You also find another trash biot, complete with bin; a strange gunlike emplacement; and a ruined, sparking biot tucked behind a mound in the corner of the region.

Important: This walkthrough for the Wheel Region assumes that this is your *first* visit to *each* location in the area. If it isn't your first visit, then matrix tiles that you failed to retrieve during previous visits may have been gathered by other astronauts or RAMA's trash collectors, the crab biots. If you have trouble finding certain items (especially matrix tiles) while consulting this walkthrough, check chapter 6, "The RAMA Garbage Disposal System."

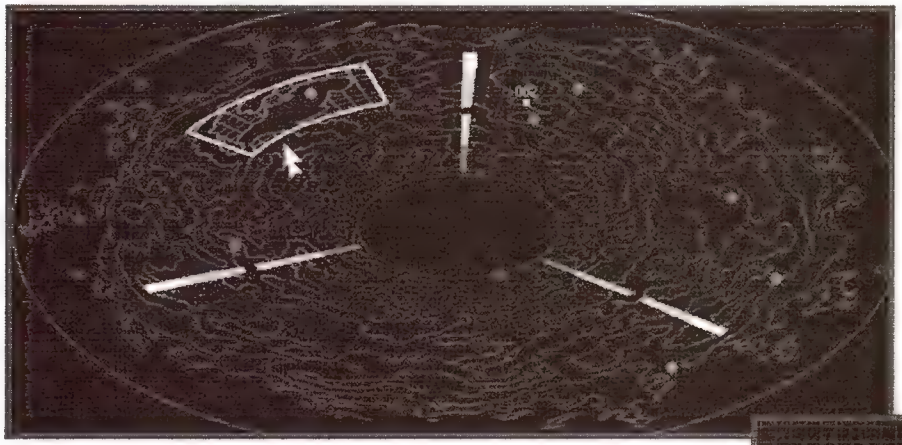
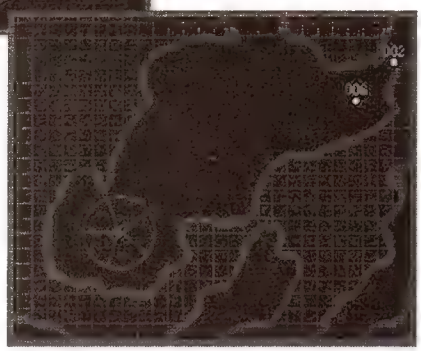
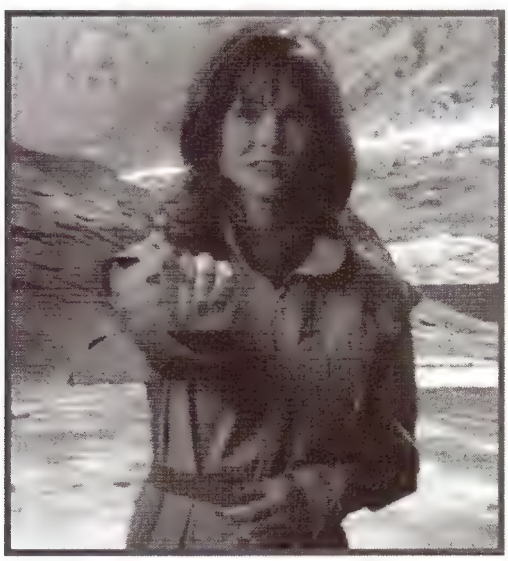


FIGURE 4-1. WHEEL REGION. HERE ARE BOTH THE RADAR MAP OVERVIEW AND THE CLOSE-UP VIEW OF RAMA'S WHEEL REGION.



- On your radar map, travel to the region shown in Figure 4-1.
- When you arrive, Francesca greets you. She hands you Otto Heilmann's "computer card" and asks you to take it back to the tent site. Ignore her, of course. Instead, load the card into your wrist computer. Now you can read encrypted messages.



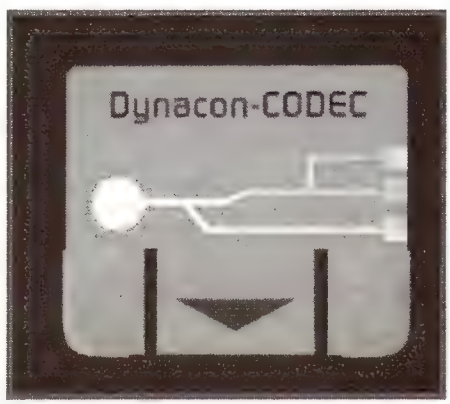


FIGURE 4-2. SOUTH DECODER. WHEN FRANCESCA GIVES YOU HEILMANN'S CODEC CARD, LOAD IT INTO YOUR WRIST COMPUTER AND READ HIS ENCRYPTED "TRINITY" MESSAGE.

- Activate your wrist computer—note the "Encryption Embedded" message at the top of the screen.
- Open the file from Heilmann entitled "Subj: Trinity" and read it.

Now, what do you suppose "deployment of the Trinity package" means? It requires code-keys and a great deal of secrecy. Plus, some guy named Admiral Nixon has been consulted. *That* doesn't sound good. This has all the makings of an incident that posterity will refer to as "Ramagate."

- Approach the trash biot.
- After the trash biot pops up, look in the bin.
- Take the matrix tile.
- Back away from the bin and turn right.
- Move forward twice and turn right to face the mechanical "cornfield."
- Pick the ear of "corn" from one of the cones on the ground at lower right.

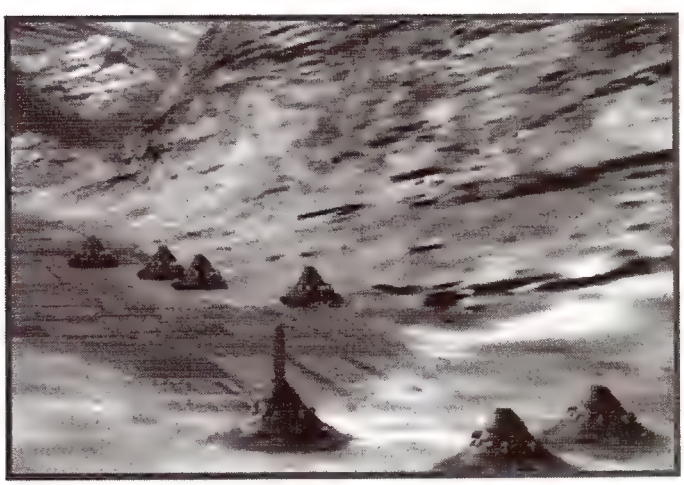
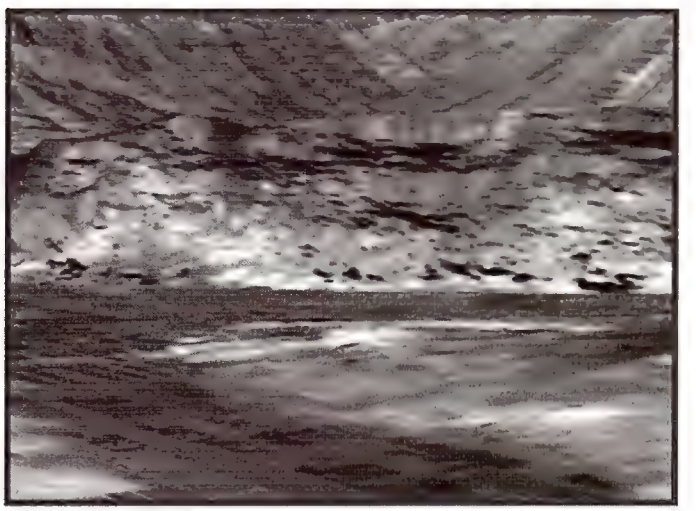


FIGURE 4-3. GIVE ME YOUR EAR. GRAB THAT MECHANICAL "CORN" IN THE WHEEL REGION CORNFIELD.

- Turn right twice.
- *Important*: Grab that matrix tile on the path at lower right. We'll call it Tile B11.



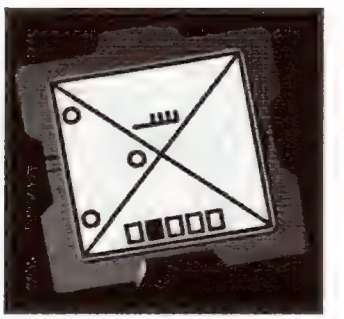


FIGURE 4-4. BANGKOK TILE. DON'T OVERLOOK THIS IMPORTANT MATRIX TILE ON THE PATH NEAR THE CORNFIELD. YOU'LL NEED IT WHEN YOU REACH RAMA'S BANGKOK STRUCTURE.

If you miss Tile B11 on your first visit, another astronaut will collect it and put it in the specimen tray back at the Base Camp.

- Turn right, then go forward once toward the laser gun emplacement.
- Pick up the matrix tile just to the right of the gun base.
- Move forward to the laser gun.

A compartment automatically extrudes from the "barrel" of the laser gun when you approach. Looks like a lens holder. Wait a minute. You *have* some lenses, don't you?

- Put the concave lens—the one you found by the biot hangar in the Beam Region—into the square slot at the right.
- Put the octagonal straight lens (obtained from Heilmann's locker 7 back at the Hub Camp) in the octagonal slot at the left.

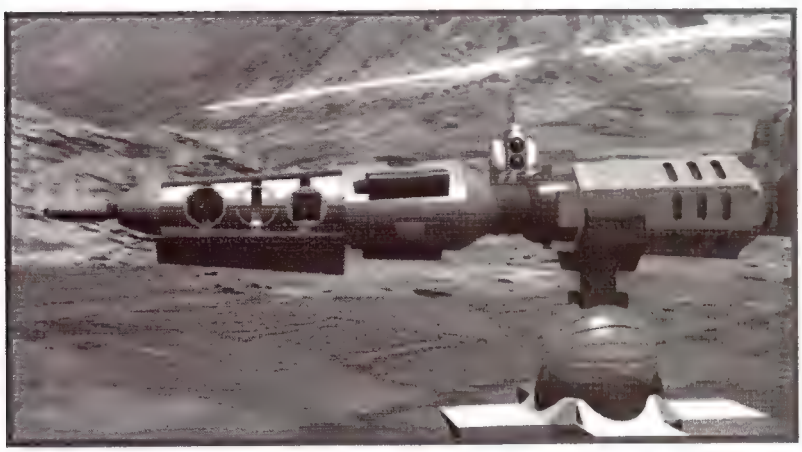


FIGURE 4-5. GUN SIGHT. LOAD THOSE GOLD-ETCHED LENSES INTO THE LASER GUN'S LENS HOLDER.

You're still missing a lens for the middle slot. Don't worry, you'll find it eventually. For now, let's continue our exploration.

- Back away from the gun.
- Turn left and move forward to that contraption that looks like a still.
- Examine its various components.

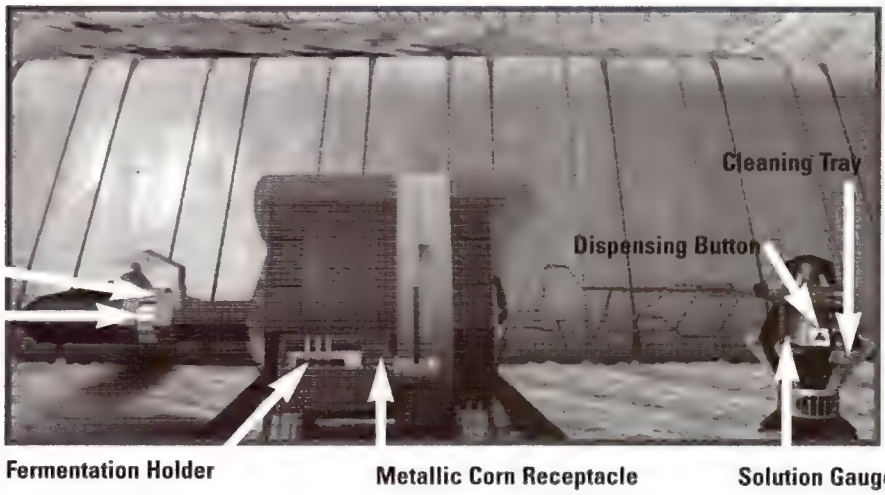


FIGURE 4-6. STILL POINT. HERE'S A LOOK AT THE STILL, WITH ITS COMPONENTS THOUGHTFULLY LABELED FOR YOU. (AFTER ALL, THIS *IS* A CHEAT BOOK.)

Interesting device, isn't it? But what does it do? Move in for a close-up of the tanklike component at the far right. See the blue gunk on the tray? Note that if you take a gunked matrix tile from inventory and hold it over the tray, the gunked tile turns red, indicating that it can be used in the tray. But nothing happens yet. You're still missing a key ingredient.

- Turn right twice to face the gun.
- Move forward twice to the ruined biot.
- Pick up the bent rod (left of biot).
- Turn right and grab that matrix tile stuck in the hillside.
- Move forward.

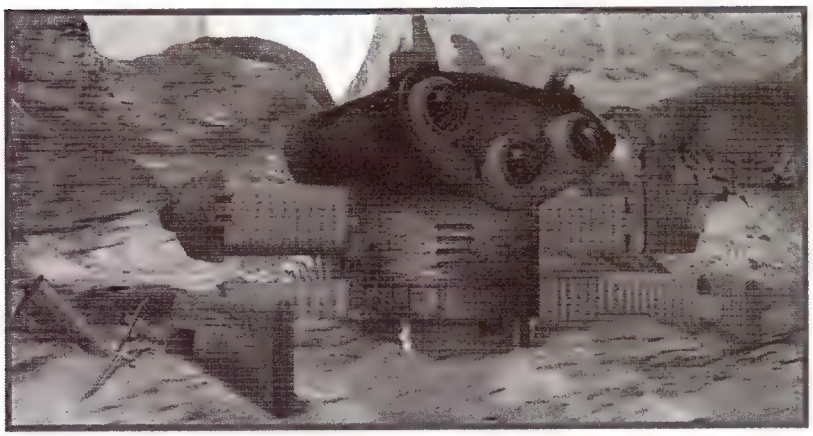


FIGURE 4-7. RUINED BIOT. THIS FELLOW'S ALL SHORTED OUT. BUT THAT BENT ROD ON THE GROUND LOOKS LIKE A USEFUL TOOL.

Did you see that bird? Puck calls it a "pigeon from hell," but actually, it's designated an "avian." More importantly, it's not just another biological robot, like the other creatures you've seen. It's a living creature. Wonder where it went?

- Exit the Wheel Region and return to RAMA Base Camp.

RAMA Base Camp

- Enter the tent and open the refrigerator.
- Take out the metal container on the bottom shelf.
- Examine the container.

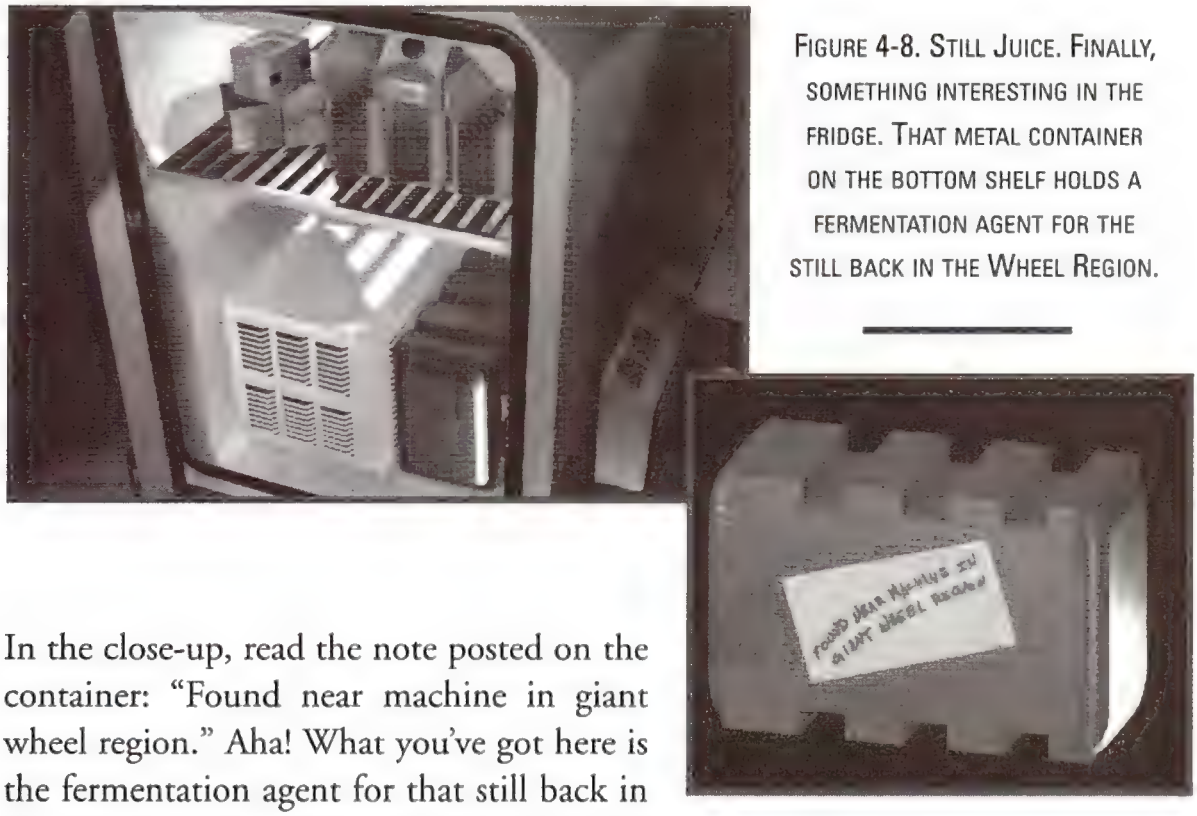


FIGURE 4-8. STILL JUICE. FINALLY, SOMETHING INTERESTING IN THE FRIDGE. THAT METAL CONTAINER ON THE BOTTOM SHELF HOLDS A FERMENTATION AGENT FOR THE STILL BACK IN THE WHEEL REGION.

In the close-up, read the note posted on the container: "Found near machine in giant wheel region." Aha! What you've got here is the fermentation agent for that still back in the Wheel Region. While you're here, might as well check the specimen tray, too. (If you're following this walkthrough step by step, the tray should be empty. But it doesn't hurt to look.)

- Exit the Base Camp and return to the Central Plains Radar Map.

Central Plains (Wakefield Encounter)

Before you hustle back to the Wheel Region, check around the Central Plains a bit. Maybe the other astronauts are having some luck.

- Click on various regions of the Central Plains until you get a close-up radar view that shows Richard Wakefield's presence—a white number "009." (It could appear in any number of regions.)

- Enter that region.

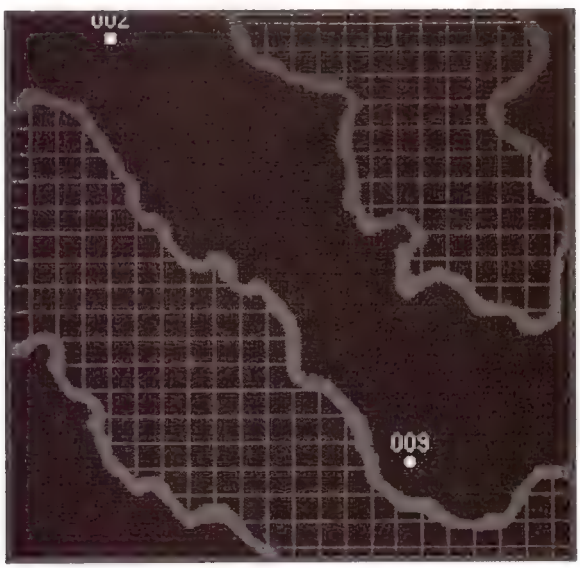


FIGURE 4-9. FIND WAKEFIELD. KEEP CLICKING ON CENTRAL PLAINS REGIONS UNTIL YOU SEE "009" IN THE CLOSE-UP RADAR VIEW.

Wakefield hands you another gold-etched optical lens, this one convex—the third and final lens for the gun back in the Wheel Region. How fortuitous.

FIGURE 4-10. THIRD LENS. WAKEFIELD'S FOUND A RAMAN ARTIFACT—ANOTHER OPTICAL LENS. NICE OF HIM TO HAND IT OVER.

- Return to the Wheel Region.

Wheel Region

- Approach the gun emplacement.
- Insert the convex lens you just got from Wakefield into the middle slot of the lens holder.

The gun automatically swivels and fires a laser blast at something near the massive metal beam stretching across the southern hemisphere. Guess what? You just melted that plastic cube back in the Beam Region, granting access to the matrix tile inside. But don't go back for it yet. To save time, finish your tasks here first.

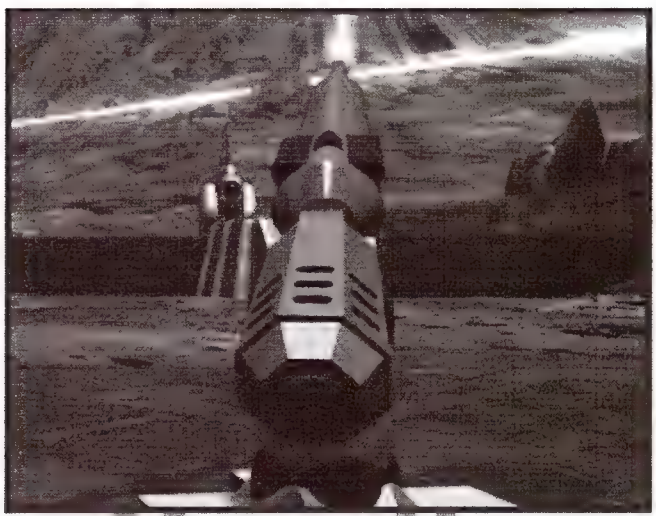


FIGURE 4-11. GUNSHOT. AFTER YOU PLACE ALL THREE LENSES IN THE HOLDER, THE LASER GUN FIRES AT A TARGET ACROSS RAMA'S CYLINDER.

- Go back to the still.
- Click on the left side of the still for a close-up.
- Click on the on/off switch at the far left. The on/off indicator next to it fills with liquid. (If you have trouble locating components, refer to Figure 4-6.)
- Put the container of fermentation agent (from the Base Camp refrigerator) into the fermentation holder—the brown box at the front of the still.
- Put the ear of corn into the metallic corn receptacle.

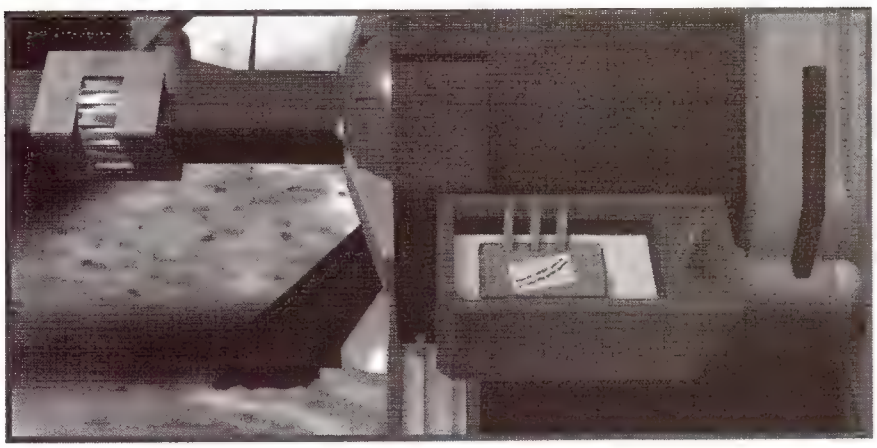


FIGURE 4-12. STILL READY. SWITCH ON, FERMENTATION AGENT LOADED, CORN INSERTED. YOU'RE READY TO CLEAN STUFF.

- Move back, then approach the tank on the right side of the still.
- Push the red button.

Cleaning solution flows from the nozzle, washing away the blue gunk in the tray. The gauge on the device indicates that you have four measures of solution left. Apparently, each metallic corn cob breaks down into five measures of cleaning solution, and now one's gone. But if you've been following this walkthrough step by step, you have exactly four gunked-up matrix tiles in your inventory, gathered from the trash pit of London.

I know, I know ... you play computer games to *avoid* cleaning stuff. But washing gunked-up matrix tiles is a necessary process in *RAMA*. Two of the gunky tiles are solution pieces for the Bangkok puzzles in the next chapter.

- Place a gunked-up matrix tile on the tray.
- Push the red button to wash the tile.
- Remove the clean tile from the tray and put it back into inventory.
- Repeat this process three more times with gunked-up tiles from your inventory.

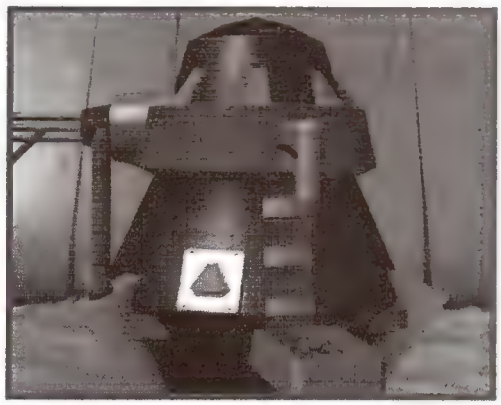


FIGURE 4-13. CLEANING STATION. WASH YOUR GUNKY TILES HERE. GOSH, WHO WOULD HAVE THOUGHT INDUSTRIAL SOLVENTS COULD BE SO MUCH FUN?

If you have more than four tiles to de-gunk, return to the cornfield, pick another ear of metallic corn, and insert it in the receptacle for five more doses of cleaning solution. Note that if you pick corn, a new ear of corn "grows" only when you leave the Wheel Region and return.

- When you're done washing tiles, back away from the cleaning station.
- Turn right twice and move once toward the laser gun.
- Turn left and move toward the ramp in the distance.
- Go up the ramp.

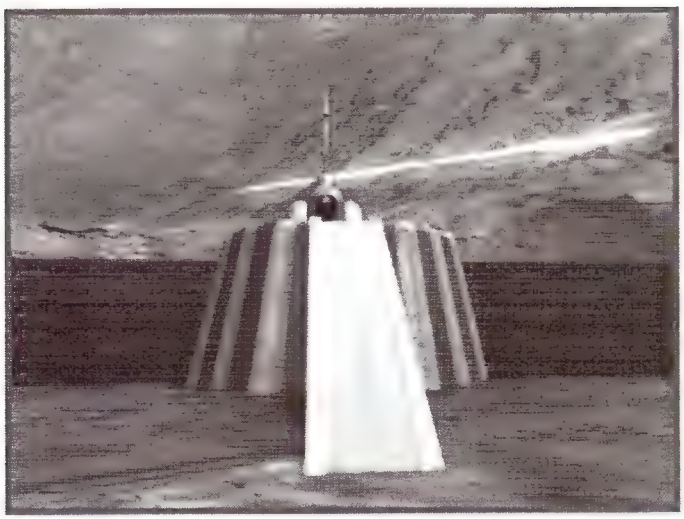


FIGURE 4-14. RAMP UP. CLIMB THAT RAMP TO THE RIM OF THE HUGE FIVE-SPOKED WHEEL MECHANISM.

You stand on the rim of a massive wheel mechanism. A circular walkway just below the rim runs around the circumference of the wheel. Five more walkways constitute the "spokes" of the wheel. Each spoke leads to a big revolving Hub Chamber in the center of the wheel.

- Look down to see the stairs leading to the walkways.
- Climb down the stairs.

When you reach the walkway at the bottom of the stairs, you can see the door to the Wheel Hub Chamber, dead ahead. But then a light flashes ... and the door rotates one spoke away, counterclockwise. What's going on here?

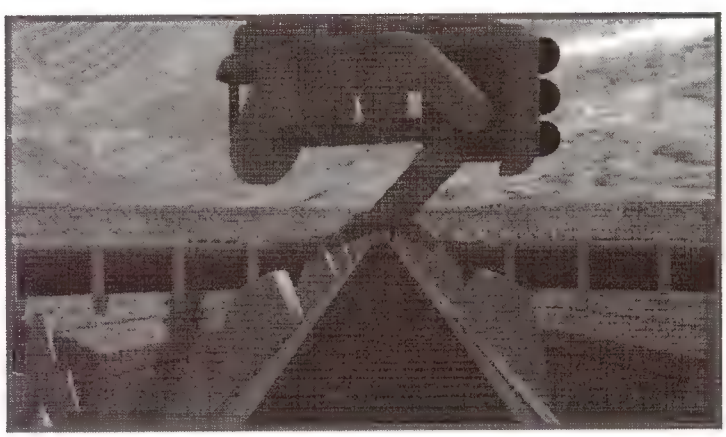


FIGURE 4-15. ROTATE THIS, MAN. HEY! WHEN I CLIMBED DOWN TO THE WALKWAY, THAT CENTRAL CHAMBER ROTATED ITS DOOR AWAY.

Try moving around the circular walkway. Every time you move to a new spoke, the Wheel Hub Chamber rotates counterclockwise. Note, however, that the chamber rotation follows a typical Raman pattern. The first time, it rotates one spoke. The second time, two spokes. Third time, three spokes. After that, the pattern repeats itself—one, two, three. Note also that the mechanism resets to its original position each time you climb back up to the wheel rim.

The idea, of course, is to line up the chamber door with the spoke you're on. Then you can walk to the door and enter the Hub Chamber. Fortunately, it's easy. Here's how:

- Climb the stairs up to the rim to reset the mechanism.
- Go back down the stairs. Turn left.
- Go forward three times. (You should be moving clockwise around the walkway.)
- Turn right to face the Hub Chamber. The door, its light flashing, should be aligned with your spoke.

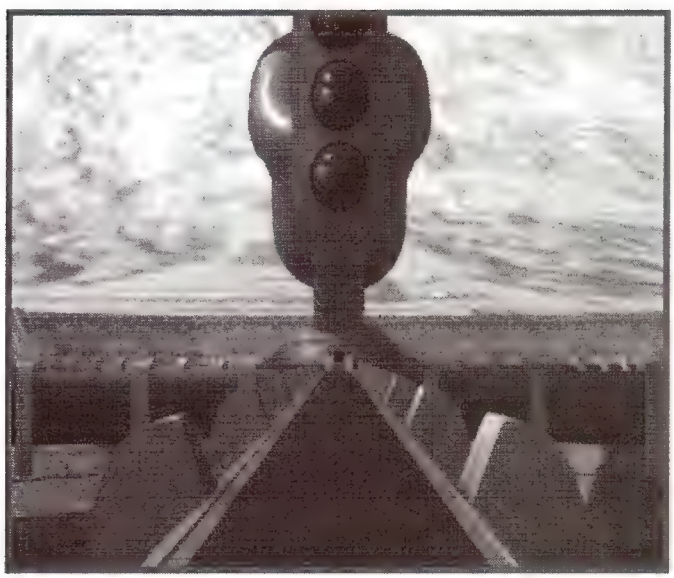


FIGURE 4-16. HUB DOOR ALIGNED. HERE'S WHAT YOU WANT TO SEE—A DOOR AT THE END OF YOUR SPOKE.

- Go forward along the spoke.
- Enter the chamber doorway.

Wheel Hub Chamber

Inside, you see a large podium with a video monitor. Something sits atop the podium as well—a maze controller card. This critical object is one of the four items you need to activate the Inventory Medallion that you obtained back in the London's third tier Biots Display Room. Unfortunately, it's out of reach. How can you get up there? You need a ladder or something.

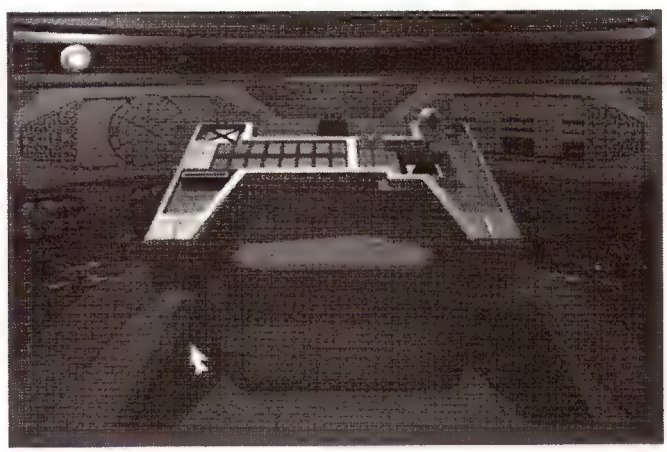


FIGURE 4-17. OUT OF REACH. THAT CARD ATOP THE PODIUM LOOKS IMPORTANT, BUT HOW CAN YOU GET UP THERE? WOULDN'T IT BE GREAT TO HAVE, SAY, A LADDER?

- Pick up the matrix tile to the right of the podium.
- Click on the monitor for a close-up view.
- Press the square button on the left side of the monitor's control panel.

The button activates a live video feed. Does it look familiar? That's the monitor back in the third tier of London, in the area behind the hostile spider biot you lifted with the crane. That's also where you got the medallion. Of course, if you came here *before* reaching London's third tier, then you see the medallion in the live video feed, too.

You can't complete the next few steps unless you've turned on the video monitor in London's third tier. If that monitor isn't active, then the screen here in the Wheel Hub Chamber shows static when you press the right-hand button.

- Press the square button on the right side of the monitor's control panel.

Now you see the cage in the biot hangar back in the Beam Region. Watch a mantis biot open the cage and release a small herd of the deadly spider biots. Note also that the mantis drops the section of cage. With its frame and crossbars, that cage section would make a pretty good ladder, wouldn't it?

- Exit the wheel mechanism.
- Return to the Beam Region.

Beam Region

You actually have two reasons for coming back here. Remember that laser blast you fired from the Wheel Region?

- Go to the plastic cube. It's now melted.
- Grab the formerly-embedded matrix tile. In our walkthrough, this is called Tile B22 (see Figure 4-18 below).

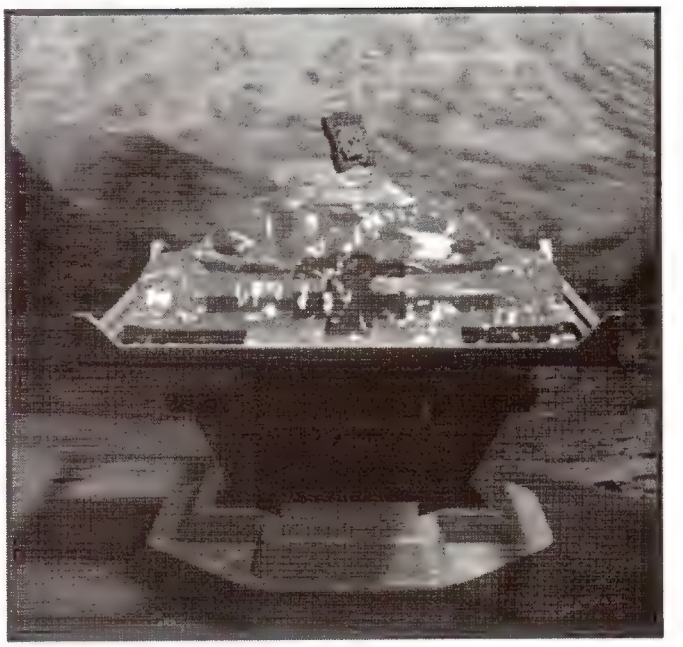


FIGURE 4-18. CUBE MELT. NOTHING LIKE A LITTLE LASER BLAST WHEN YOU NEED ACCESS TO SOMETHING. TILE B22 IS A SOLUTION TILE FOR ONE OF THE MATRIX PUZZLES IN BANGKOK.

- Go to the cage in the biot hangar.
- Pick up the cage section on the floor.

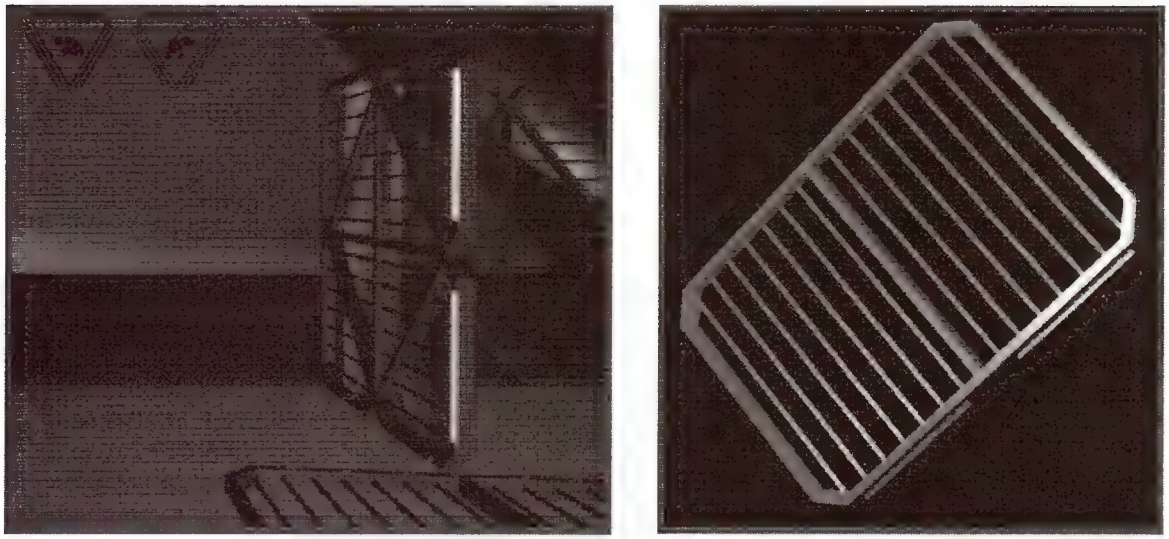


FIGURE 4-19. MAKESHIFT LADDER. PICK UP THAT SECTION OF CAGE ON THE FLOOR AND TAKE IT BACK TO THE WHEEL HUB CHAMBER.

- Exit the Beam Region and return to the Wheel Region.

Wheel Region (Hub Chamber)

- Return to the Wheel Hub Chamber in the wheel mechanism.
- Place the cage section (called a "ladder" in your inventory) against the left side of the podium.

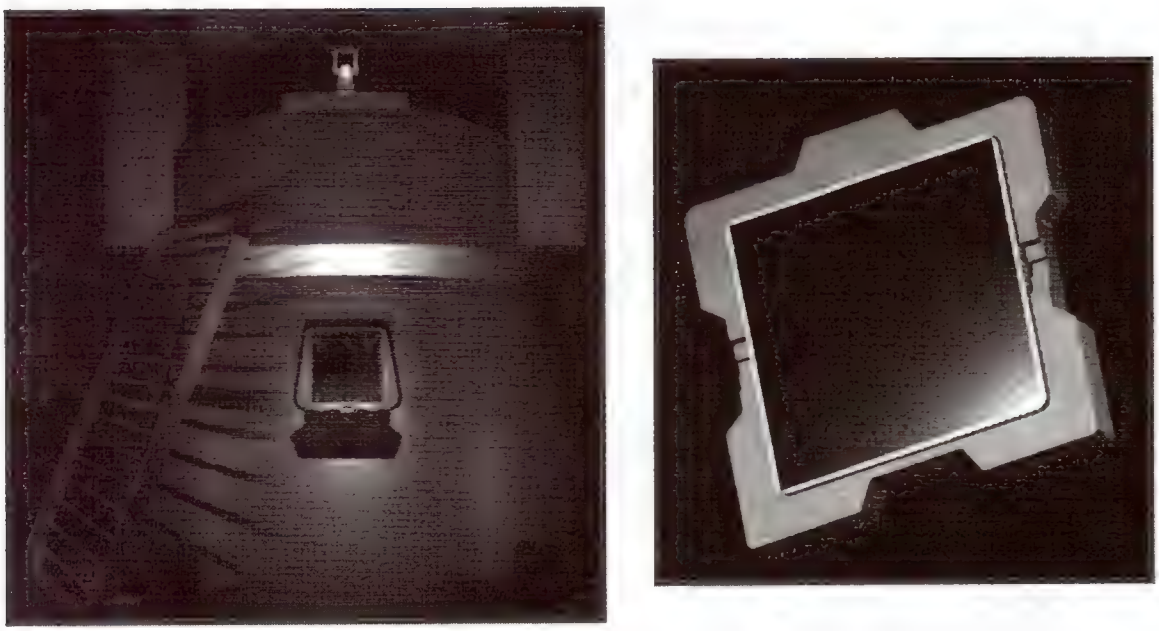
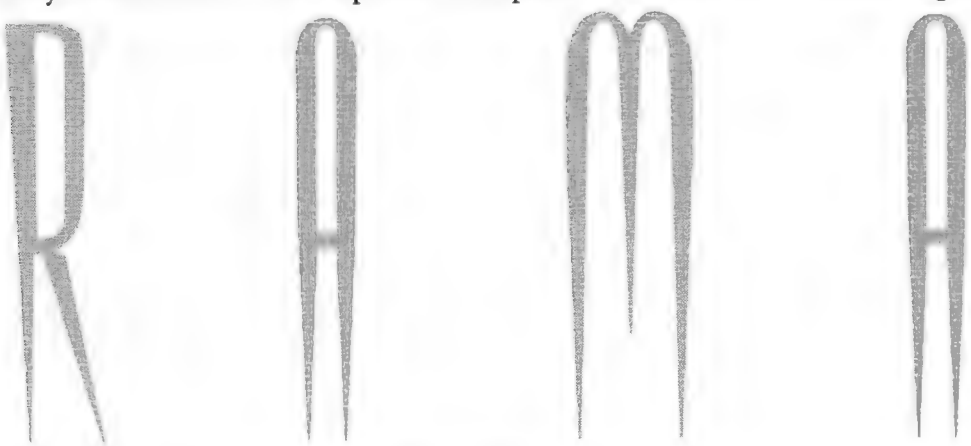


FIGURE 4-20. CLAIM THE PRIZE. USE THE CAGE SECTION AS A LADDER, THEN CLIMB THE PODIUM AND CLAIM THE MAZE CONTROLLER CARD—ONE OF FOUR ITEMS YOU NEED TO ACTIVATE THE MEDALLION.

- Climb the ladder.
- Take the maze controller card.

After you put the maze controller card in inventory, take a close-up look at the "Inventory Medallion." The top icon (shaped like a matrix tile) is now glowing.



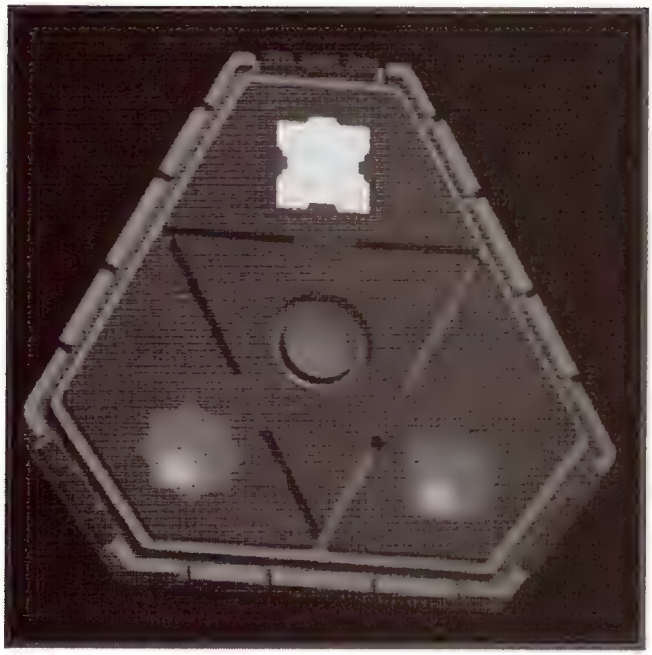


FIGURE 4-21. FIRST GLOW. THE MAZE CONTROLLER CARD ACTIVATES THE TOP ICON OF THE MEDALLION.

- Exit the wheel mechanism.
- Go back to the ruined biot.

There's that avian that flew past earlier. Clearly, it's no biot—the creature is a biological life form. And it looks like the poor fellow is caught in the ruined machine. How can we set him loose?

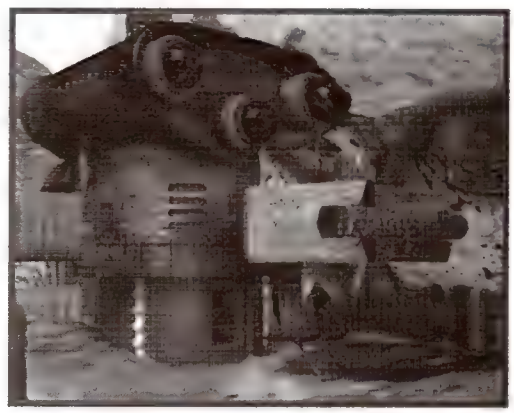


FIGURE 4-22. BIRD CAGED. THIS AVIAN SEEMS TO BE WEDGED INTO THE RUINED BIOT. CAN YOU GIVE HIM A HAND?

- Look in the open compartment where the light is flashing (left of the avian).
- Note the power cable in the compartment.

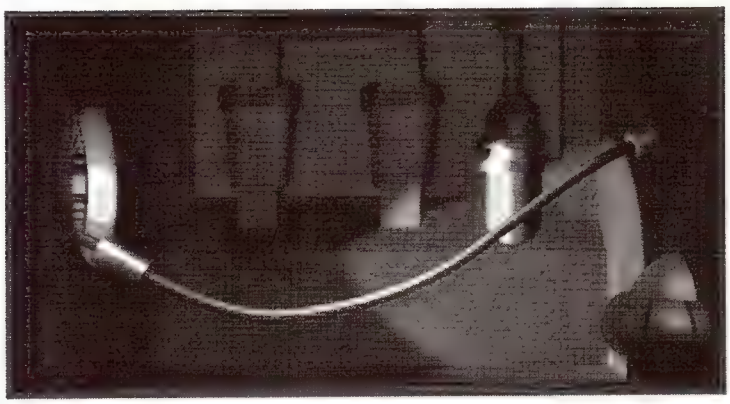


FIGURE 4-23. POWER CABLE. THE BIOT'S POWER FLOWS THROUGH THAT SPARKING CABLE.

If you could snip that cable, perhaps the biot would deactivate and release the poor creature. Unfortunately, your ISA knife isn't up to the task. You should be on the lookout for a more heavy-duty set of snippers.

- Exit the Wheel Region to the Central Plains Radar Map.

Chapter 5
Bangkok/Iceport

BANGKOK, LIKE LONDON, is a complex structure with three separate levels. While London was built by the Ramans to explain the geography and function of the RAMA spaceship, Bangkok exhibits the various species that RAMA encounters on this particular mission. Here, each of the three species onboard—in this case, humans, octospiders, and avian/myrmicats—can learn about the nature of the other passenger species.

Once you complete the levels of Bangkok and obtain two more icons for the Inventory Medallion, two more tasks await. First, you must free the avian trapped by the ruined biot in the Wheel Region; then you must go to the Iceport and find transport across the frozen Cylindrical Sea to the mysterious skyscrapers of New York.

Important: This walkthrough for Bangkok and the Iceport assumes that this is your *first* visit to each location in these areas. If this *isn't* your first visit, then matrix tiles and other important items that you failed to retrieve during previous visits may have been gathered by other astronauts or RAMA's trash collectors, the crab biots. If you have trouble finding certain items (especially matrix tiles) while consulting this walkthrough, check out chapter 6, "The RAMA Garbage Disposal System."

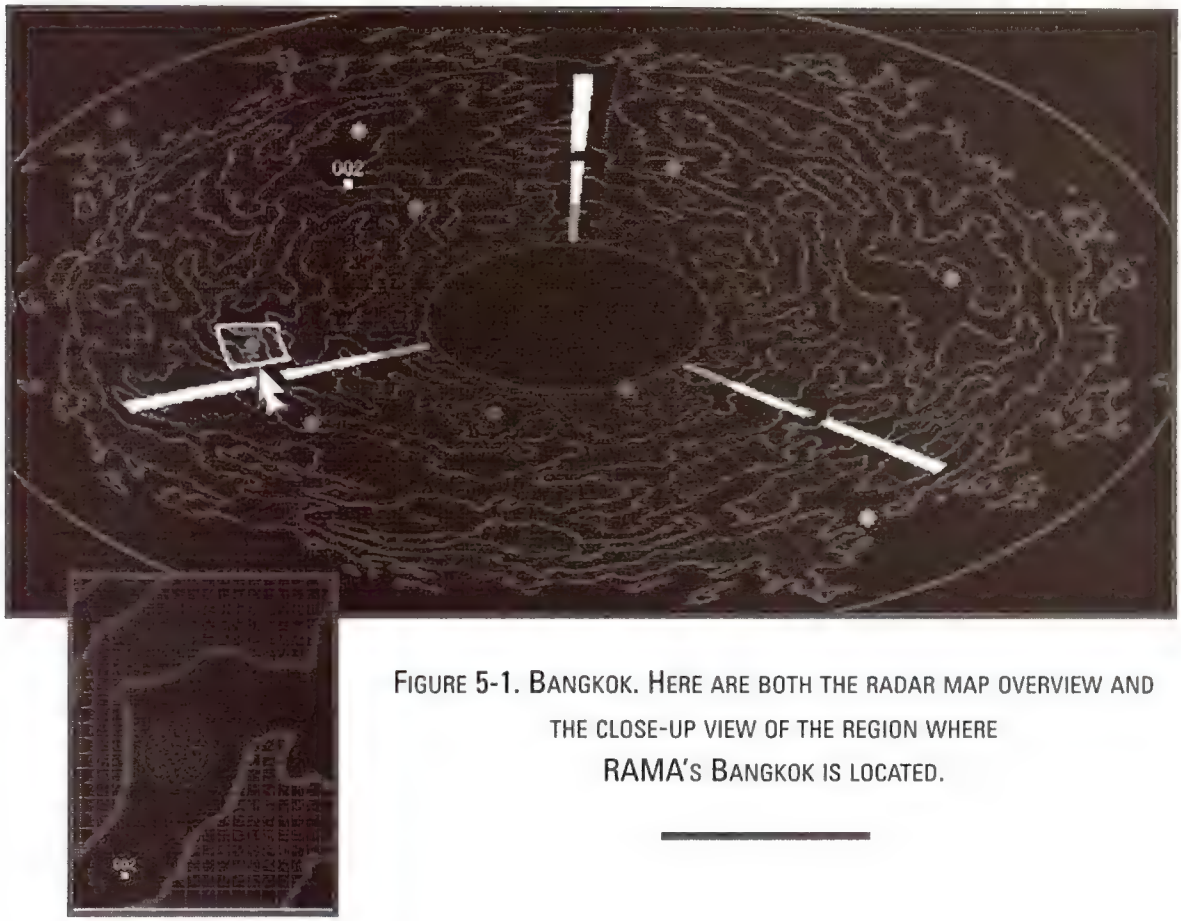


FIGURE 5-1. BANGKOK. HERE ARE BOTH THE RADAR MAP OVERVIEW AND THE CLOSE-UP VIEW OF THE REGION WHERE RAMA'S BANGKOK IS LOCATED.

- On your radar map, travel to the region shown in Figure 5-1.
- Go forward to Bangkok's entry door.
- Click on the puzzle podium to the right of the door.

There are three different puzzles in Bangkok, one for access to each level of the structure. As in London, the puzzles rotate. If you misplace two tiles in the first puzzle, it changes to the second; misplace two tiles in the second, it changes to the third; misplace two tiles in the third, it rotates back to the first puzzle again, and the cycle begins anew.

Since these three puzzles also rotate as a group with the puzzle leading to London's third tier, it is possible that you've already solved one of the original Bangkok puzzles. If so, the London puzzle (see Figure 3-24 in chapter 3) replaces that one in the Bangkok rotation.

This walkthrough solves the three matrix puzzles of Bangkok in the most efficient order. But you can try to solve them in any order you want. Refer to Figures 5-2, 5-9, and 5-19 in this chapter for the matrix solutions.

- Insert Tile B11 into the empty slot in the bottom row on the matrix puzzle shown in Figure 5-2. This is the tile you found on the ground near the metallic cornfield in the Wheel Region.

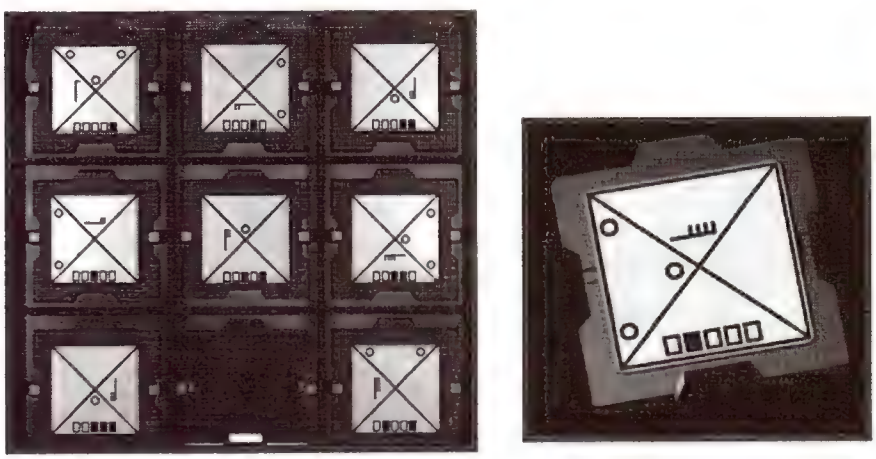


FIGURE 5-2. MATRIX SOLUTION FOR ENTRY TO BANGKOK, FIRST TIER

- Go through the now-open entry.

Bangkok: First Tier (Human Anteroom)

The anteroom on each level of Bangkok contains "learning machines" created by the Ramans to teach the numbering systems of the species currently onboard RAMA. The first level is a piece of cake, since the species on display here is *Human Being*. You happen to be one of those, I believe.

- In the anteroom, turn right and examine the displays of the human number system.

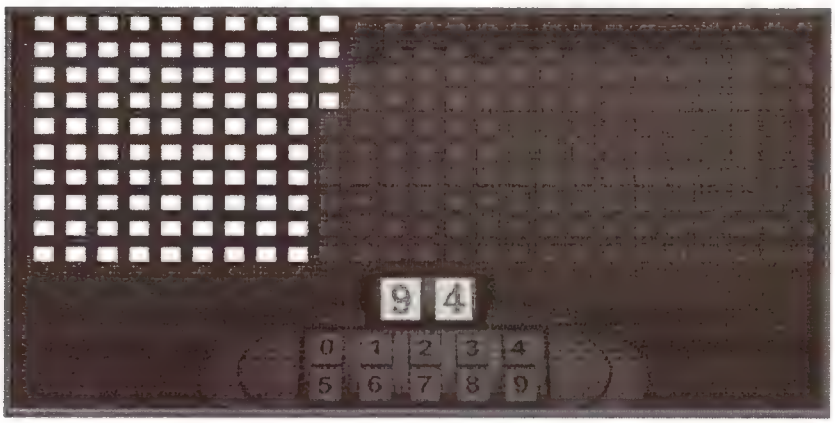


FIGURE 5-3. LOW MATH. THESE DISPLAYS OF THE HUMAN NUMBERING SYSTEM MIGHT SEEM SIMPLISTIC ... BUT THAT'S BECAUSE YOU'RE HUMAN.

These simple displays of our numbering system are no test of *our* intelligence, but they're not meant for us. However, they illustrate what you can expect on succeeding levels of Bangkok regarding other species and *their* numbering systems.

- Turn around to face the three machines on the other side of the anteroom.

These are the learning machines. Each station features a particular number-related task. From left to right, the tasks are Repetition, Recognition, and Manipulation. Again, since you are "learning" very basic human numerical patterns on this level, these three tasks will not be difficult here. But the process prepares you to understand how to approach the much more difficult learning machines on the upper levels of Bangkok.

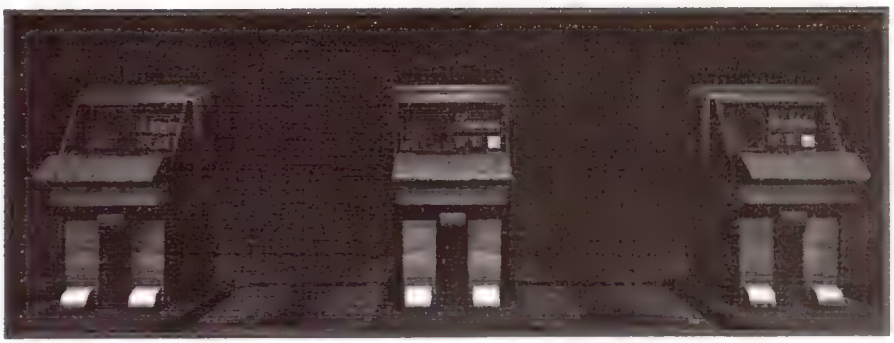


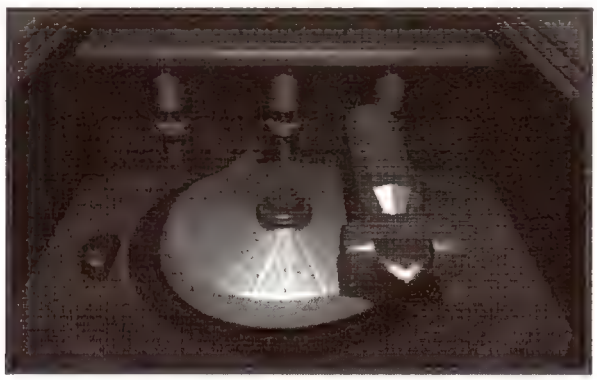
FIGURE 5-4. LEARNING MACHINES. EACH STATION IS ORIENTED TO A SPECIFIC LEARNING TASK. FROM LEFT TO RIGHT, THE MACHINES TEST REPETITION, RECOGNITION, AND MANIPULATION.

- Approach the first machine on the left, the Repetition testing station.
- Observe the demonstration.

The machine posts a number series—12357—and repeats that series. This demonstrates your task. Simply repeat the number or series of numbers presented by the learning machine. Not too tough, is it?

- Click on the numbered buttons to repeat each of the sequences of numbers that appear on the screen. When you correctly repeat five numbers, a compartment opens in the machine.
- Click on the handle in the compartment. This opens the door (to your right) from the anteroom to the museum.

FIGURE 5-5. REPETITION. CORRECTLY REPEAT FIVE NUMBERS PRESENTED BY THE MACHINE. THEN UNLOCK THE MUSEUM DOOR.



You can go directly into the Human Museum after unlocking its door. But it's more efficient to complete your work with the other two learning machines in the anteroom first.

- Back away from the Repetition machine.
- Approach the middle machine, the Recognition testing station.
- Observe the demonstration.

This machine presents a bunch of objects on the screen. Your job is to figure out how many objects, then punch in that number. Again, it's not very difficult on this human tier. (However, these tests are randomly generated each time, so I couldn't give you the correct answers in any case.)

- Use the buttons to type the number that corresponds to the quantity of objects in each picture that appears on the screen.
- When you correctly recognize five numbers, a compartment opens in the machine. And your reward is … red dust! Whatever was there has disintegrated.
- Back away from the Recognition machine.

FIGURE 5-6. RECOGNITION. CORRECTLY NAME THE QUANTITY OF OBJECTS IN THE FIVE ARRANGEMENTS PRESENTED BY THE MACHINE AND WIN A PRIZE … SORT OF.

- Approach the machine at the right, the Manipulation testing station.
- Observe the demonstration. This machine presents simple addition or subtraction problems.
- When you correctly answer five problems, yet another compartment opens. Take the jewel.

FIGURE 5-7. MANIPULATION. CORRECTLY ANSWER THE FIVE MATH PROBLEMS PRESENTED BY THE MACHINE AND WIN A JEWEL.

- Back away from the Manipulation machine.
- Turn right and enter the Human Museum.

Human Museum

This place is kind of amusing. It's a snapshot of human culture, as seen through Raman eyes.

- After you step through the doorway, turn around and pick up the matrix tile (just to the right of the doorway).
- Turn back and proceed into the museum.
- Observe the displays. Learn about humans!

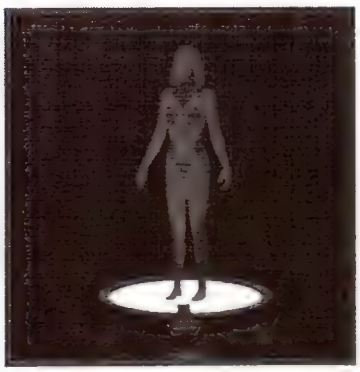
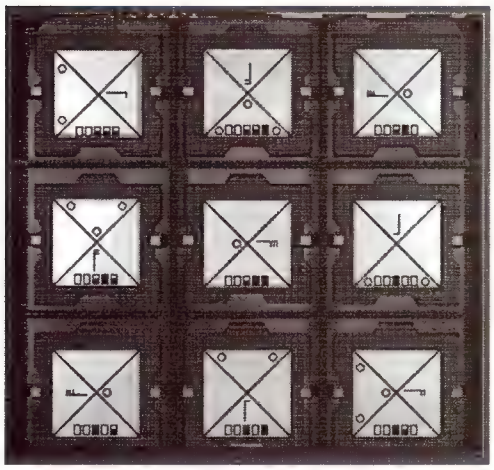


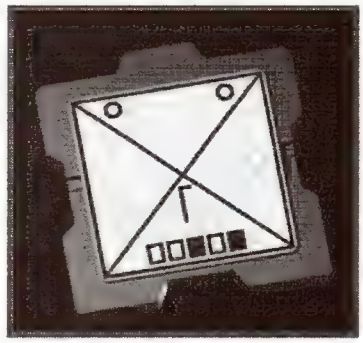
FIGURE 5-8. HUMAN MUSEUM. IMPRESS YOUR FRIENDS WITH ESOTERIC KNOWLEDGE ABOUT THE HUMAN SPECIES! FOR EXAMPLE, HUMAN FEMALES ARE BUFFED AND FREQUENTLY SIT IN CHAIRS.

- Go into the elevator at the far end of the museum (opposite the anteroom).
- Click on the podium to bring up the next matrix puzzle.

This puzzle features the same elements as the one you solved at Bangkok's first-tier entry door (see Figure 5-2). Solving the puzzle activates the purple elevator button.

- Insert Tile B21 into the middle slot in the bottom row (see Figure 5-9). This is one of the tiles you recovered from the London trash pit and then de-gunked at the still in the Wheel Region.
- Insert Tile B22 into the far right slot in the bottom row (see Figure 5-9). This is the tile you retrieved from the plastic cube that you melted in the Beam Region.





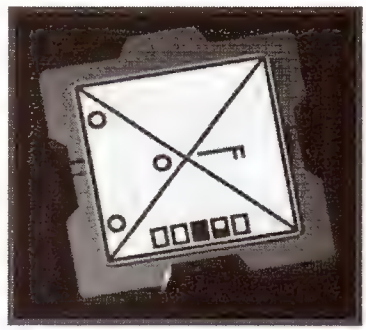


FIGURE 5-9. MATRIX SOLUTION FOR ENTRY TO BANGKOK, SECOND TIER

- Press the purple button next to the podium to activate the elevator. You ride to the second tier of Bangkok—the myrmicat level.

Bangkok: Second Tier (Myrmicat Anteroom)

Here's where the going gets a bit tougher. This level of Bangkok features the numbering system and culture of an alien species, the myrmicats. Not only do the myrmicats have different markings to represent numbers, they have a different counting base: Base Sixteen!

- Step out of the elevator into the anteroom.

- Turn right and examine the displays of the myrmicat number system.

Yikes! There are 16 different myrmicat number symbols, equivalent to the human numbers 0 to 15. And since the myrmicat system is Base Sixteen, its digit place values are different. At this point, it might be best to find a good, readable mathematics text to learn how to compute numbers in bases other than Base Ten. Or you can wade through the following attempt (by a nonmathematician) to explain how Base Sixteen works.

Figure 1

Figure 2

Myrmicat Base Sixteen: How It Works

In the myrmicat Base Sixteen, the rightmost column is a "1s" column as in Base Ten, but it can count up to 15 units. For example, although the myrmicat number shown in figure 1 is a single-digit number, it equals 15. The second column in Base Sixteen counts 16s, not the 10s we count in Base Ten. The third column counts 256s rather than the 100s we count in Base Ten. Thus, if you translate myrmicat numbers to human numbers, the symbol "100" would actually equal 256, since it places a value of "1" in the 256 column.

Tip

If you get stuck, go back and study the displays on the opposite wall. If all else fails, try your scientific calculator.

Here's a chart of familiar Base Ten place values compared to Base Sixteen place values for four-digit numbers:

	Column 4 :	**Column 3:**	**Column 2:**	**Column 1:**
Base 10	X 1000	X 100	X 10	X 1
Base 16	X 4096	X 256	X 16	X 1

So if myrmicat number shown in figure 1 was in the fourth column of a myrmicat number, that digit would equal (in human Base Ten) 15 times 4096, or 61,440. To calculate any multidigit number, you multiply the digit in each column by the place value associated with that column, then add all the results.

As an example, let's calculate the human Base Ten value of the myrmicat number shown in figure 2. The four digits of figure 2 translate to 4, 12, 6, 3 in human Base Ten numbers. Thus, you have a 4 in the 4096 column (4 X 4096 = 16,384), plus 12 in the 256 column (12 X 256 = 3072), plus 6 in the 16 column (6 X 16 = 96), plus 3 in the 1 column (3 X 1 = 3). To find the Base Ten value of figure 2, you calculate 16,384 + 3072 + 96 + 3. So the myrmicat number shown in figure 2 equals 19,555 in our Base Ten. Geez, isn't that easy?

Figure 5-10 translates myrmicat number symbols into the equivalent Base Ten human numbers:

FIGURE 5-10. MYRMICAT NUMBER SYMBOLS TRANSLATED TO HUMAN BASE TEN

Myrmicat Learning Machines

- Turn to the myrmicat learning stations across the room.
- Listen to Wakefield describe the machines.

FIGURE 5-11. RICHARD'S THEORY.
WAKEFIELD RECOGNIZES THESE LEARNING MACHINES AS PART OF AN "INSIDIOUSLY CLEVER" RAMAN SCREENING PROCESS TO SEE IF WE ARE "NUMERICALLY LITERATE." ARE WE?

- Approach the first machine on the left, the Repetition testing station.
- Observe the demonstration. The machine posts a series of myrmicat number symbols and then repeats that series.
- Repeat the symbols or series of symbols presented by the learning machine. When you correctly repeat five numbers, a compartment opens in the machine.
- Click on the handle in the compartment. This opens the door (to your right) from the anteroom to the Myrmicat Museum.

FIGURE 5-12. REPETITION. CORRECTLY REPEAT FIVE MYRMICAT NUMBERS PRESENTED BY THE MACHINE. THEN YOU CAN UNLOCK THE MUSEUM DOOR.

You can go directly into the Myrmicat Museum after unlocking its door. But it's more efficient to complete your work with the other two learning machines in the anteroom first.

- Back away from the Repetition machine.
- Approach the middle machine, the Recognition testing station.
- Observe the demonstration.

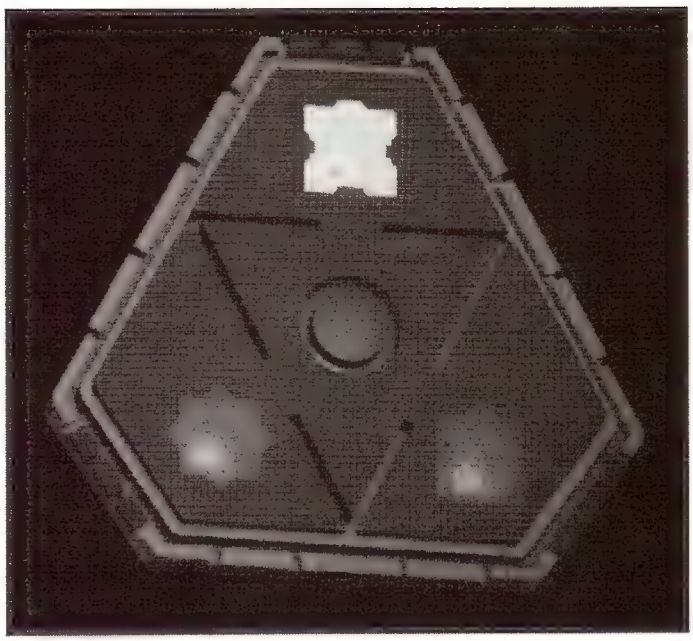
As in the Recognition machine on the human level, this machine presents objects on the screen. Your job is to figure out how many objects, then punch in that number. But now you have to punch in a myrmicat Base Sixteen number.

Sorry, you'll have to do some real computing here. The myrmicat Recognition and Manipulation test problems are randomly generated, so I can't just give you the five answers for each test.

FIGURE 5-13. RECOGNITION. TYPE THE MYRMICAT NUMBER THAT EQUALS THE QUANTITY OF OBJECTS ON THE SCREEN. DO IT FIVE TIMES TO WIN A PRIZE.

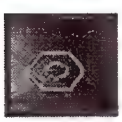
- Use the buttons to type the myrmicat number that corresponds to the quantity of objects in each picture that appears on the screen. When you recognize five numbers, a compartment opens in the machine.
- Take out the object—the Human Icon.
- If you check your "Inventory Medallion," you'll see that another icon is illuminated. You now have two of the four icons you need to activate the medallion.
- Back away from the Recognition machine.

FIGURE 5-14. HUMAN ICON. HERE'S YOUR REWARD FOR BESTING THE MYRMICAT RECOGNITION MACHINE. ACQUIRING THIS ICON SETS AGLOW ANOTHER MEDALLION ICON.



- Approach the machine at the right, the Manipulation testing station.
- Observe the demonstration. Again, this machine presents simple addition or subtraction problems … but using myrmicat Base Sixteen numbers and arithmetic signs (see below).

is the myrmicat sign for "plus."



is the myrmicat sign for "minus."

is the myrmicat sign for "equals."

You can actually complete *RAMA* without solving the problems at the Manipulation testing stations on all three levels of Bangkok. But if you succeed at these machines, you collect three bonus jewels that can be traded for a very useful artifact.

- When you correctly answer five problems, yet another compartment opens. Take the jewel.
- Back away from the Manipulation machine.
- Turn right and enter the Myrmicat Museum.

Myrmicat Museum

Here's a fun place. Wander around the museum and check out this bizarre alien species. In particular, note the creature exhibits, which suggest a relationship between the winged avians, the six-legged myrmicats, and the strange, egglike "manna melons." Note also the "slide show" that depicts an unusual metamorphosis from melon to myrmicat and back again.

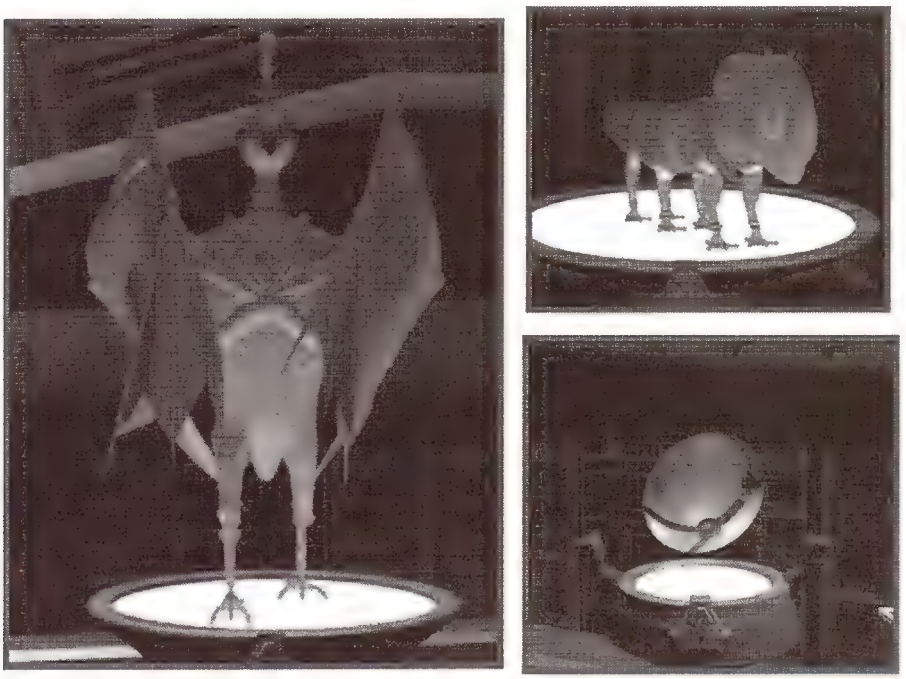


FIGURE 5-15. SYMBIOSIS. THESE THREE EXHIBITS SUGGEST A FUNDAMENTAL RELATIONSHIP BETWEEN AVIAN, MYRMICAT, AND MELON.

- Important! At the "domestic" exhibit (lamp, chair, etc.), take the myrmicat clippers!

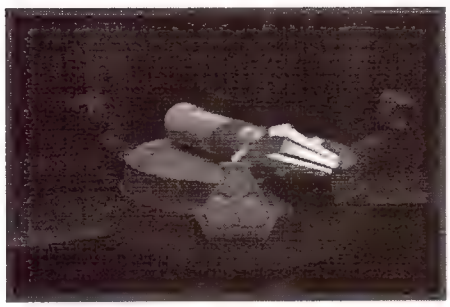
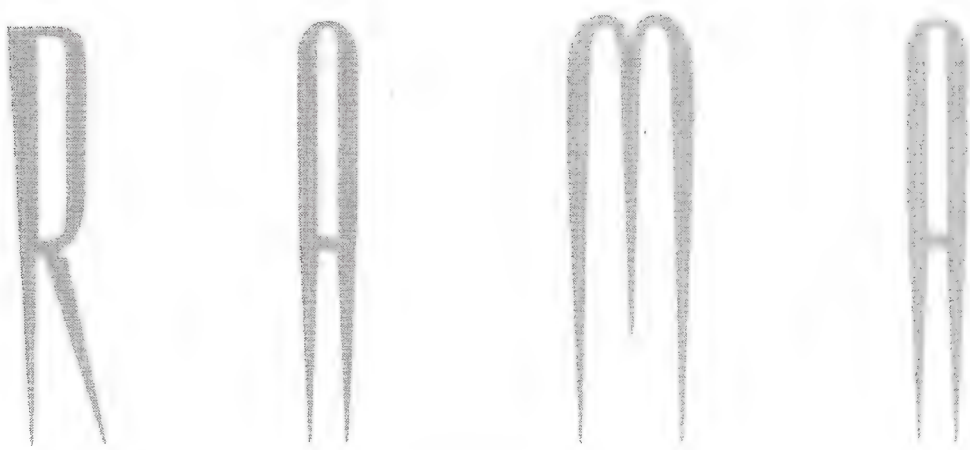


FIGURE 5-16. CABLE CUTTER. THOSE MYRMICAT CLIPPERS CAN SNIP THROUGH THICKER THINGS THAN CAN YOUR ISA MULTI-TOOL. LET'S "BORROW" THEM.

- Go into the elevator at the far end of the museum (opposite the anteroom).
- Click on the podium to bring up the final matrix puzzle.
- Insert Tile B31 (see Figure 5-17) into the middle slot in the middle row. This is one of the tiles you pulled from the London trash pit and the gunk at the Wheel Region still.
- Insert Tile B32 (see Figure 5-18) into the far right slot in the bottom row. This is the tile you found inside the lockbox that you plugged into the force field switch box outside London.



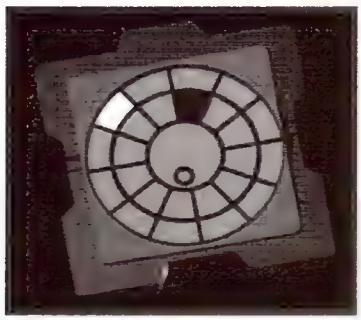


FIGURE 5-17. MATRIX TILE B31

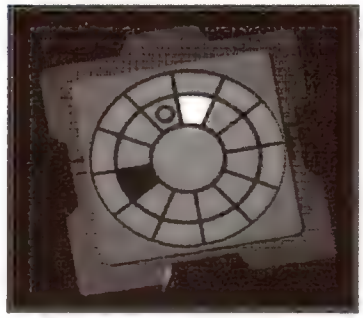


FIGURE 5-18. MATRIX TILE B32

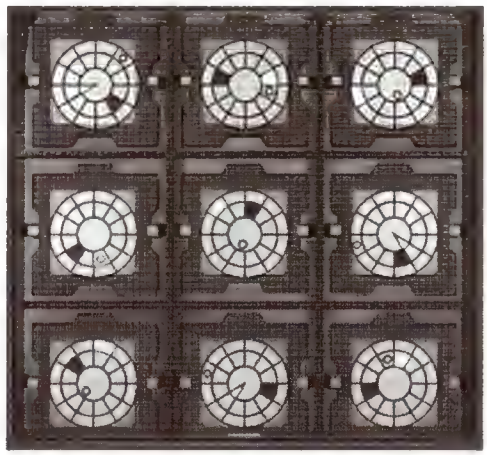


FIGURE 5-19. MATRIX SOLUTION FOR ENTRY TO BANGKOK, THIRD TIER

- Press the purple button next to the podium to activate the elevator. You ride to the third tier of Bangkok—the octospider level.

Bangkok: Third Tier (Octospider Anteroom)

Here we go again: Math time. This final level of Bangkok features the numbering system and culture of the magnificent octospider species. Unfortunately, the octospiders don't use Base Ten either. As you might guess, these eight-tentacled creatures count in Base Eight … and to make things even more interesting, they use colors instead of symbols to differentiate their numbers.

- Step out of the elevator into the anteroom.
- Turn right and examine the displays of the octospider number system.

The octospiders have eight number symbols, equivalent to the human numbers 0 to 7. And since the octospider system is Base Eight, the place values of the digits are different. Figure 5-20 below translates octospider number symbols into the equivalent Base Ten human numbers:

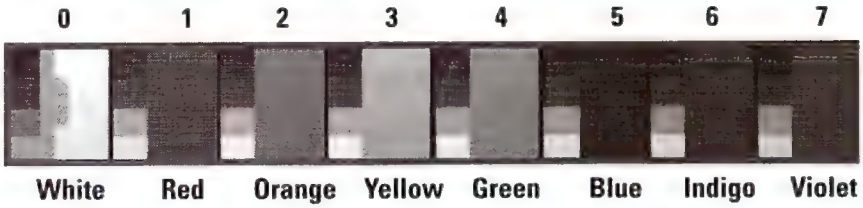


FIGURE 5-20. OCTOSPIDER NUMBER SYMBOLS TRANSLATED TO HUMAN BASE TEN

Octospider Base Eight: How It Works

In the octospider Base Eight, the rightmost column is a "1s" column as in Base Ten, but it can count up to only 7 units. For example, although the octospider number "red-white" (one-zero) is a double-digit number, it equals 8. The second column in Base Eight counts 8s, not the 10s we count in Base Ten. The third column counts 64s rather than the 100s we count in Base Ten.

Alas, this book is in black and white, so I'll have to *describe* the digits of each octospider number. For example, the octospider number for our number 8 is a red bar, then a white bar, or "red-white."

Here's a chart of familiar Base Ten place values compared to Base Eight place values for five-digit numbers:

	Column 5:	Column 4 :	Column 3:	Column 2:	Column 1:
Base 10	X 10,000	X 1000	X 100	X 10	X 1
Base 8	X 4,096	X 512	X 64	X 8	X 1

Tip

If you get stuck, go back and study the displays on the opposite wall. If all else fails, try your scientific calculator.

So if a green bar was in the fourth column of an octospider number, that digit would equal (in human Base Ten) 4 times 512, or 2,048. To calculate any multidigit number, you multiply the digit in each column by the place value associated with that column, then add all the results.

As an example, let's calculate the human Base Ten value of the four-digit octospider number "green-white-blue-yellow." The four digits (green, white, blue, yellow) translate to 4, 0, 5, 3 in human Base Ten numbers. Thus, you have a 4 in the 512 column (4 X 512 = 2,048), plus 0 in the 64 column (0 X 64 = 0), plus 5 in the 8 column (5 X 8 = 40), plus 3 in the 1 column (3 X 1 = 3). To find the Base Ten value of "green-white-blue-yellow," you calculate 2,048 + 0 + 40 + 3. So the octospider number "green-white-blue-yellow" equals 2,091 in our Base Ten.

Octospider Learning Machines

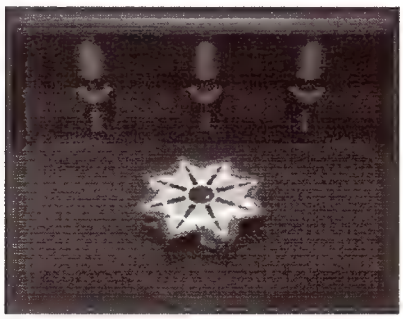
- Turn to the octospider learning stations across the room.
- Approach the first machine on the left, the Repetition testing station.
- Observe the demonstration.

- Repeat the series of symbols presented by the learning machine. (It's quite easy.) When you correctly repeat five numbers, a compartment opens in the machine.
- Click on the handle in the compartment. This opens the door (to your right) from the anteroom to the Octospider Museum.
- Back away from the Repetition machine.
- Approach the middle machine, the Recognition testing station.
- Observe the demonstration.
- As in the Recognition machine on the other levels, this machine presents objects on the screen. Your job is to figure out how many objects, then punch in the octospider Base Eight number that corresponds to that quantity.
- Use the buttons to type the octospider number that corresponds to the quantity of objects in each picture. When you recognize five numbers, a compartment opens in the machine.
- Take out the object—the Octospider Icon.

If you check your "Inventory Medallion" again, you'll see that a third icon is aglow. Now you have three of the four icons you need to activate the medallion.

You can go directly into the Octospider Museum after unlocking its door. But it's more efficient to complete your work with the other two learning machines in the anteroom first.

As in the human and myrmicat machines, the octospider Recognition and Manipulation machines generate random equations, so I can't just give you the five answers for each test.



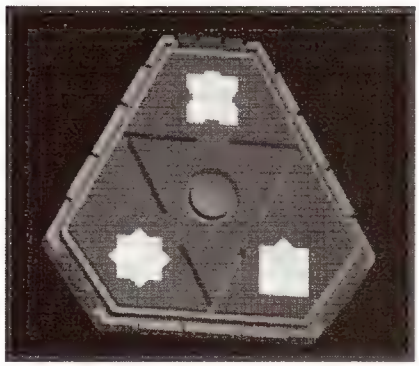


FIGURE 5-21. OCTOSPIDER ICON. HERE'S YOUR REWARD FOR CONQUERING THE RECOGNITION MACHINE. ANOTHER ICON LIGHTS UP ON YOUR MEDALLION.

- Back away from the Recognition machine.
- Approach the machine at the right, the Manipulation testing station.
- Observe the demonstration. Again, this machine presents simple addition or subtraction problems ... but using octospider Base Eight numbers and arithmatic signs.

■ in red is the octospider sign for "plus"; in blue is the sign for "minus"; and in yellow is the sign for "equals."

- When you correctly answer five problems, a compartment opens.
- Take the jewel.
- Back away from the Manipulation machine.
- Turn left and go back into the elevator.
- Look at the podium. A three-hole gem holder appears where the matrix puzzle used to be. Got three gems on you?
- Click on the gem holder for a close-up.

- Place all three red gems in the holder.
- Take the "number box" from the compartment.

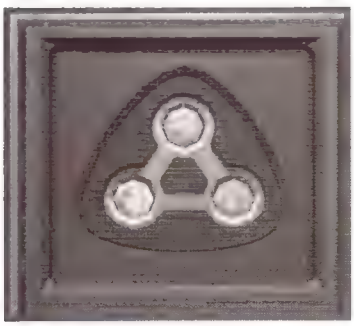


FIGURE 5-22. ROSETTA STONE. PLACE THE THREE GEMS IN THE HOLDER TO RECEIVE YOUR REWARD FOR DILIGENT MANIPULATION ON ALL THREE LEVELS—A NUMBER TRANSLATOR.

This number box will prove useful later in New York. This cube matches the numbers 0 to 15 of all three number systems—human, myrmicat, and octospider.

- Turn around and go through the anteroom into the Octospider Museum.

Octospider Museum

Octospiders are a strange and wondrous breed of alien. They count and communicate in colors. But before you peruse the octospider exhibits, pick up a critical object.

- After you enter the museum, turn left once to face the species display.
- Pick up the "indigo green jewel" from the floor (left of screen).

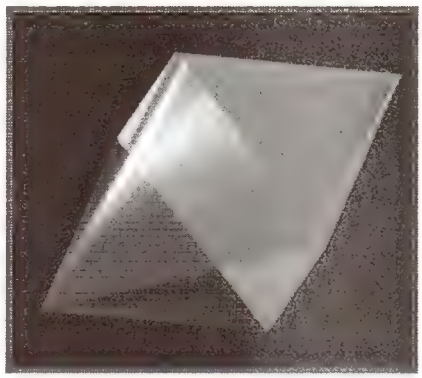


FIGURE 5-23. TWO-TONE JEWEL. THE CURSOR ARROW POINTS TO A SMALL, TWO-COLORED JEWEL ON THE FLOOR. PICK IT UP. YOU'LL NEED IT IN NEW YORK.

- Examine the various octospider exhibits.
- Exit Bangkok and go back to the Wheel Region.

Wheel Region: Free the Avian

Maybe we can finally do something about that poor avian trapped in the ruined biot. Ripping off museums is not normally a good thing, but those myrmicat clippers you lifted from Bangkok ought to come in handy here.

- Go to the ruined biot.
- Look in the compartment where the cable is sparking.
- Cut the cable with the myrmicat clippers.

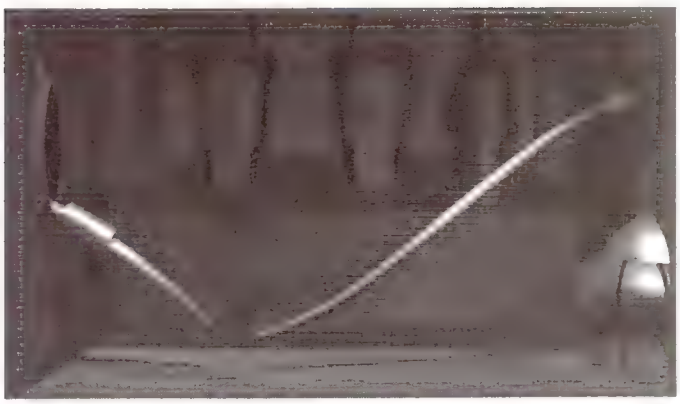


FIGURE 5-24. POWER OUT. CUT THAT SPARKING CABLE WITH THE SNIPPERS ABSCONDED FROM THE MYRMICAT MUSEUM.

- Back away from the cable compartment.
- Use the bent rod (from the ground next to the ruined biot) on the biot's arm to free the avian. The grateful creature offers you one of its neck rings. Take the neck ring. The avian flies away.

FIGURE 5-25. GOOD SAMARITAN. AFTER YOU PRY THE AVIAN LOOSE WITH THE BENT BAR, HE OFFERS YOU A RED NECK RING.

This is the final icon for the Inventory Medallion. All four icons are now illuminated. Good job! Time to make your way to the Iceport.

- Exit the Wheel Region to the Central Plains Radar Map.

Iceport

At this point, everything in *RAMA* steers you toward the Iceport on the frozen Cylindrical Sea. Indeed, if you linger anywhere else too long, Nicole des Jardins appears and urges you to meet her at the Iceport right away.

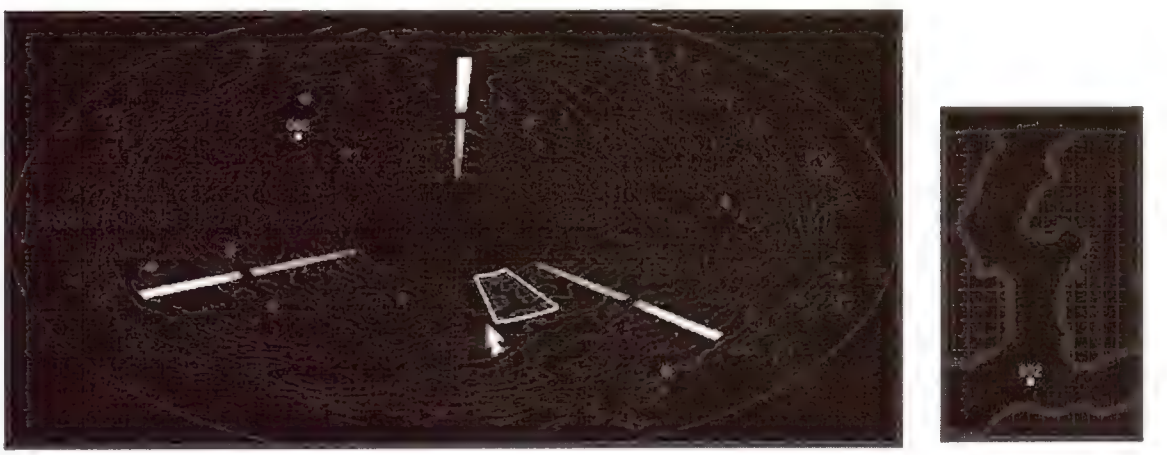


FIGURE 5-26. RAMA ICEPORT. HERE ARE THE RADAR MAP OVERVIEW AND THE CLOSE-UP VIEW OF THE RAMA ICEPORT REGION.

- Travel to the Iceport—the region shown in Figure 5-26.
- Turn left, go forward, then turn right. Dr. Brown awaits your arrival.

Brown has bad news. ISA has ordered the *Newton* team to evacuate RAMA immediately. Unfortunately, he's lost contact with Takagishi, O'Toole, and Sabatini, who at last report were exploring the skyscrapers of New York, the island in the middle of the Cylindrical Sea. Nicole appears, offering to look for the missing trio … with you, of course. Brown gives you a data cube and exits. Nicole suggests you look around the Iceport for a while. She'll meet you shortly at the icemobile.

FIGURE 5-27. ICY MEETING. BROWN AND DES JARDINS MEET YOU AT THE ICEPORT WITH SOME BAD NEWS.

- Load the data cube into your wrist computer and view the three transmissions.
- Go forward twice to the port area.
- Turn right, go forward, then turn left. Another bomb!
- Step forward for a closer look. Uh-oh. It's armed.

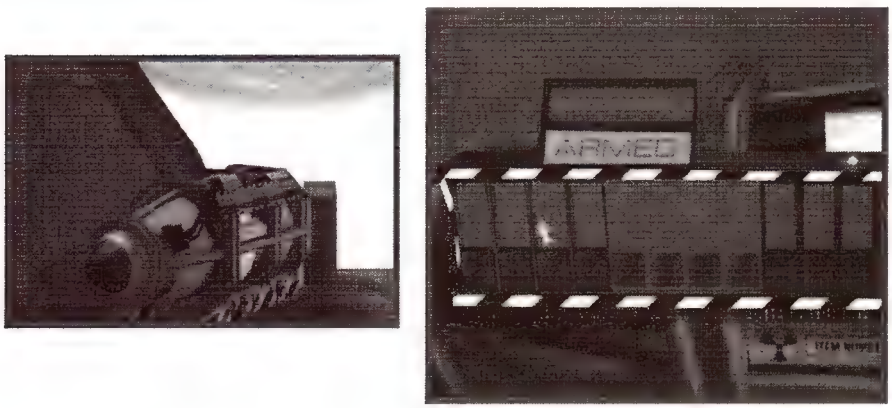


FIGURE 5-28. EXPLOSIVE DISCOVERY. ANOTHER BOMB. AND THIS ONE'S ARMED.

- Back up, turn left, go forward to the ramp.
- Turn right and take the ramp down to the icemobile dock. Go to the icemobile. Nicole tells you to hurry.

FIGURE 5-29. ICEMOBILE. COOL! HOP IN!

- Hop in the icemobile. You automatically transport to New York.

Chapter 6
The RAMA Garbage Disposal System

IF YOU'RE FOLLOWING THIS WALKTHROUGH STEP BY STEP, beginning to end, you should have no trouble finding all of the items needed to solve the Raman puzzles. But if you refer to this book only sporadically, you may find that certain items are not where I say they are. You may be frustrated. Angry.

Hey, don't blame me. Blame the Ramans. Their magnificent ship features a disposal system that won't tolerate the presence of loose, overlooked objects. Indeed, RAMA's garbage collectors add a unique layer of challenge to your exploration of the Central Plains regions.

This chapter is not part of the solution path walkthrough. If you've already figured out the Raman garbage system—or you *just don't care*—skip ahead to chapter 7.

Here's how RAMA's disposal system works:

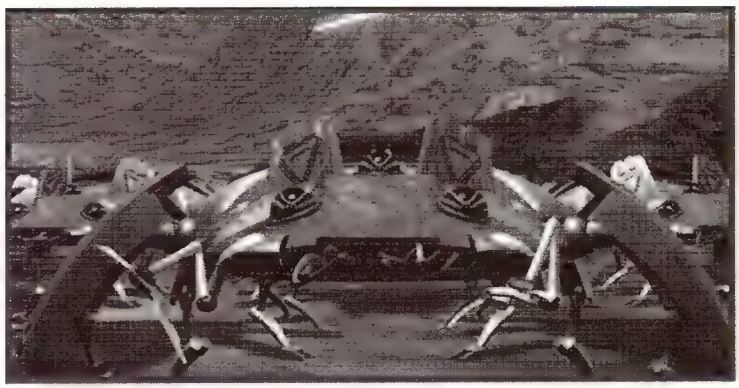
Step 1: Items Fall to Raman Floor
A careful search of the various Central Plains regions reveals a number of recoverable items—tiles, map pieces, and other objects. How they got there, nobody knows. If you pick up items the *first time* you pass through an area, you save them from garbage processing ... and you save yourself a lot of extra legwork.

Step 2: Items Collected by Newton Team
If you visit a specific location, *overlook* an item, then leave the region, the item probably won't be there when you return.

A fellow astronaut may pick it up and return it to the Base Camp for storage in either the specimen tray or the refrigerator. Or the astronaut may deliver the item to you in a Central Plains encounter.

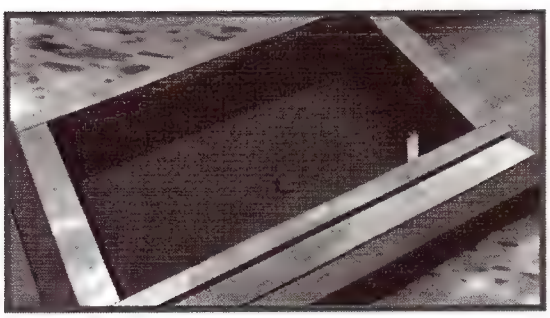
Step 3: Items Collected by Crab Biots

If astronauts don't nab an item, crabs will. Crab biots are important elements in the game. These fearsome biological robots are the garbage collectors of RAMA's Central Plains. They move in gaggles of six, in bowling pin formation. If you overlook vital objects the first time you explore an area, and fellow astronauts don't pick them up, then crab biots collect them.



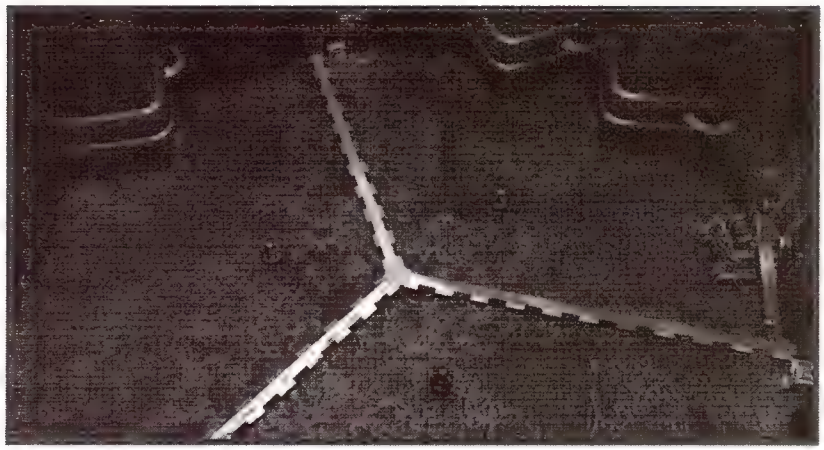
Tip

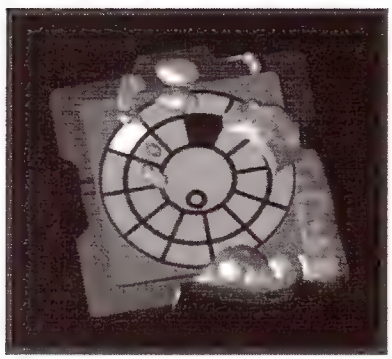
Always check the bins next to the trash biots if you reenter the Beam or Wheel Regions. You may find items you overlooked in previous visits, thus saving yourself a trip to the London trash pit and then to the Wheel Region de-gunking machine.



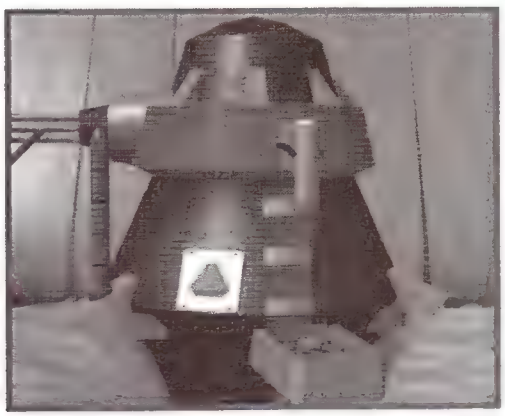
Step 4: Crabs Place Items in Trash Bins

After crab biots gather garbage, they toss the items into bins next to the two trash biots in RAMA—one each in the Wheel and Beam Regions. You can pick them out of the bin on your *second* visit to the region.





Step 5: Items Travel from Bins to London Trash Pit. When you leave the Beam or Wheel Regions, any items that you failed to retrieve from the trash biot bins are shuttled through RAMA's underground trash chutes to the waste treatment plant in the second tier of the London structure. You can still retrieve them there, but they will be covered with blue gunk.

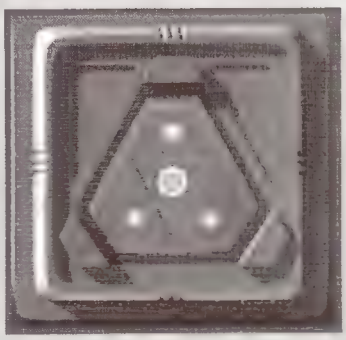


Step 6: Wash Gunked-Up Items at Still

Gunked-up objects are useless until cleaned. You must wash them in the still at the Wheel Region. But the still won't work until you find two key ingredients—a fermentation agent (in a container back in the Hub Camp refrigerator) and a metallic ear of corn (in a nearby "cornfield"). Each ear provides five doses of cleaning solution for the still. See chapter 4 for a complete description of this process.

Chapter 7
New York

NEW YORK IS REALLY SIX SEPARATE AREAS—three plazas and three underground lairs—plus a maze that connects the plazas. The solution path requires a lot of shuttling back and forth between these areas, so it's best to consider above-ground New York as one big consolidated region. The underground lairs (particularly the Avian Lair) are so big that they warrant chapters unto themselves.



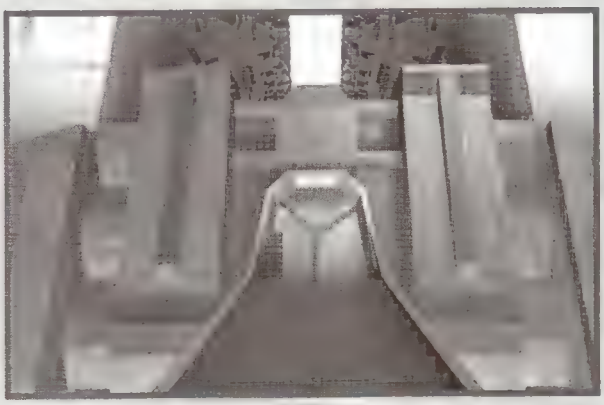


FIGURE 7-1. GATES OF NEW YORK. THAT'S AN AWFULLY BIG GATE, BUT THE INVENTORY MEDALLION UNLOCKS IT QUITE NICELY.

- Climb the steps to the gate and turn left.
- Place the medallion in the slot. The gates open.
- Step forward through the gates.
- Pick up the data cube (at the bottom right corner of the screen).
- Read the message from Heilmann to his security henchmen. (It's encrypted, but you still have decryption embedded in your computer.)

Heilmann's instructs his men to avoid O'Toole. Note in particular the last line: "The disarming code is five of his favorite numbers."

- Go forward into the Avian Plaza.

Avian Plaza

This spectacular plaza is honeycombed with interesting structures, alleys, and alcoves to visit. Go ahead. Explore. At this point in the game, you still have plenty of time to wander around and marvel at the beauty and mystery of RAMA.

This walkthrough follows the most efficient route through the game, so we'll leave a few areas unexplored as we move from plaza to plaza.

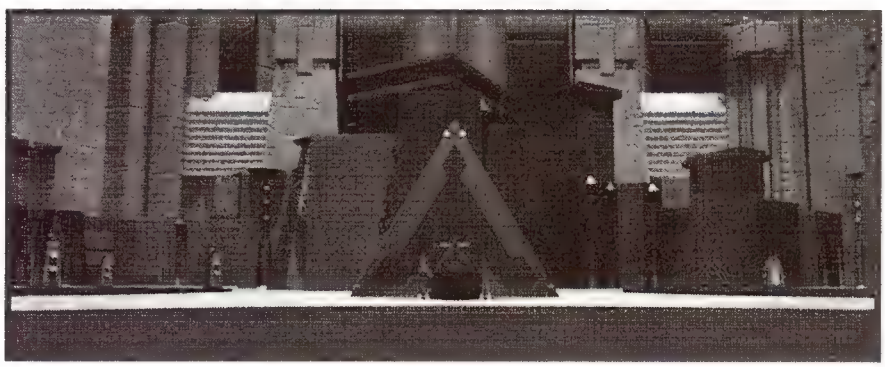


FIGURE 7-2. AVIAN PLAZA. WHAT A WILD PLACE. CHECK OUT THAT BIG TETRAHEDRON-SHAPED BUILDING WITH THE TRIANGULAR DOOR, STRAIGHT AHEAD.

- Go forward to the giant tetrahedron in the center of the plaza.
- Take one step up the black stairs.
- Turn left to the avian statue.

Note the statue's red neck-ring. Just above the ring, you see another groove on the avian's neck. Apparently, this bird is one ring short of a full neck regalia.

- Put the avian neck ring from inventory on the statue.

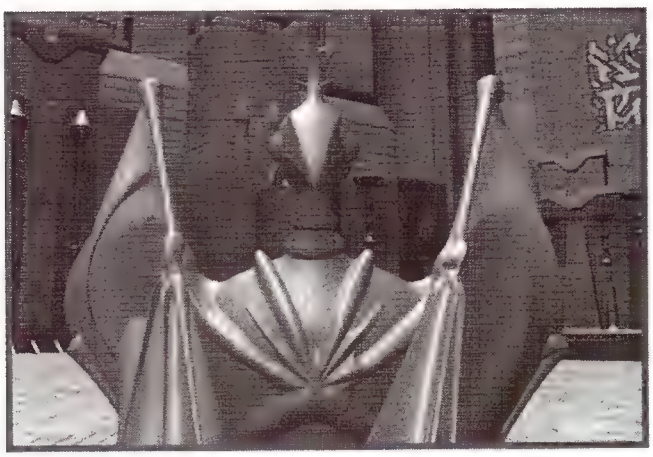


FIGURE 7-3. RING THAT BIRD'S NECK! AFTER YOU DO THIS, A HANDLE APPEARS NEAR THE TOP OF THE TRIANGULAR DOOR ... JUST OUT OF YOUR REACH.

- Turn left and step forward to the center of the plaza.
- Turn right once and step forward into the small alcove.
- Turn left and grab the yellow filter. (Look carefully. It's sitting on the ledge.)

FIGURE 7-4. YELLOW FILTER. FOLLOW THE CURSOR ARROW IN THIS SHOT TO THE SMALL ALCOVE, WHERE YOU'LL FIND A PING-PONG PADDLE ... NO, WAIT, IT'S A "YELLOW FILTER."

- Turn left and go forward to the center of the plaza.
- Turn right to the maze-controller alley.
- Go forward and follow the alley to the maze controller.

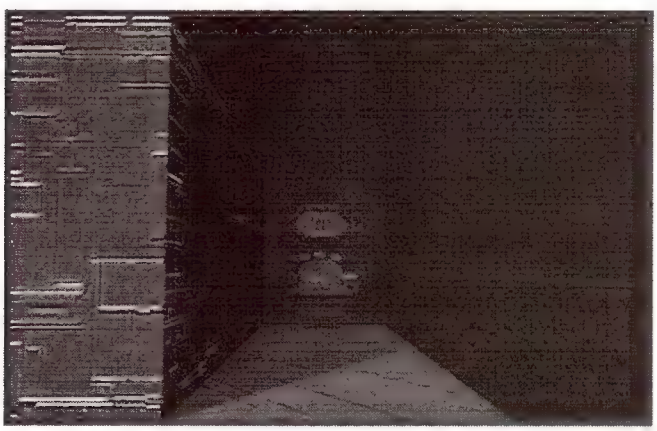


FIGURE 7-5. MAZE CONTROLLER. DOWN THAT NARROW ALLEY LIES A DEVICE THAT WILL OPEN UP THE REST OF NEW YORK TO YOUR PRYING EYES.

Here's the device that O'Toole mentioned in his last vidmail transmission to Brown. It's a maze-controller machine. Remember the map of New York you pieced together back in the first level of the London structure? (If not, see Figure 7-7.) The island city consists of three open areas, called "plazas" by the astronauts. These plazas are connected by a maze. The maze has three gates controlled by this machine you've just found. Each setting opens and closes a different combination of the gates.

- Click on the device for a close-up view.
- Place the maze-controller card (called a "blank plaque" in your inventory) in the slot in the device. This is the card you retrieved from the top of the podium inside the Wheel Hub Chamber in the Wheel Region.
- Find the directional arrow buttons on the piston (far left of screen).
- Press the right arrow button until the yellow knob on the piston is under the rightmost red indicator light. (That light turns on.)

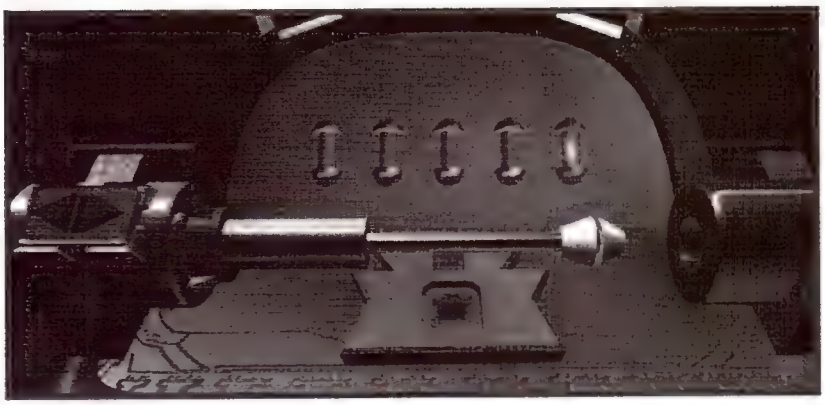


FIGURE 7-6. AMAZING DEVICE. THE NEW YORK MAZE CAN DRIVE YOU NUTS ... UNLESS YOU SET THE MAZE-CONTROLLER PISTON TO THE RIGHT-MOST POSITION, AS SHOWN HERE.

Do you hear those tones? You'll hear them again shortly when you pass through gates in the New York maze. There are three maze gates altogether, each with its own tone. When you manipulate the maze-controller device and hear a tone, it means the gate with that corresponding tone is now open. So when you move the piston to the farthest right setting on the maze controller and hear those three tones, you know that all of the maze gates are open. You can leave the machine in this setting for the rest of the game.

- Exit the maze-controller alley.
- Go to the maze entrance on the opposite side of the plaza.
- Enter the maze.

New York Maze: Find the Tuning Forks

This is not a particularly gnarly maze, but you do have to be vigilant because there are five small objects—tuning forks—scattered through the passages. Only two will be important later, but I suggest you find all five anyway. It will get you familiar with the maze layout.

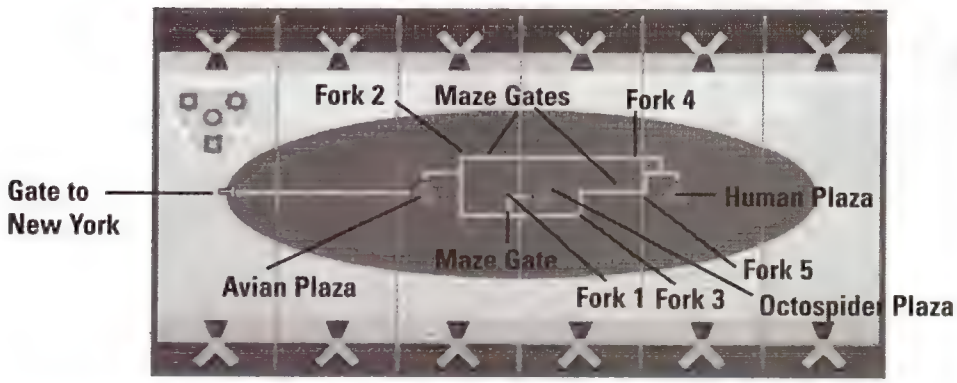


FIGURE 7-7. MAP OF NEW YORK

Tip

You can't see the tuning forks when facing certain ways. Look carefully in all four directions.

- Find the five tuning forks. (See Figure 7-7 for locations.) Note that each tuning fork has five wavy lines, some of which are glowing red.
- Go back to the Avian plaza.

We'll call the fork with one glowing red line Fork 1, the fork with two glowing red lines Fork 2, and so on. As I mentioned, only two of the five forks are useful in the game: the single-lined fork (Fork 1) and the four-lined fork (Fork 4).

FIGURE 7-8. GOOD FORKS. THESE TWO TUNING FORKS WILL BE USEFUL LATER. THE OTHERS ARE FOR YOUR PERSONAL SOUVENIR COLLECTION.

Avian Plaza

- After you enter the plaza from the maze, go forward twice, left, and forward twice to the jagged pillar.
- Turn right and go forward to the inclined ramp.

Note that the ramp leads up to an elevated door. Note also that there are four other doors, of which only one is open.

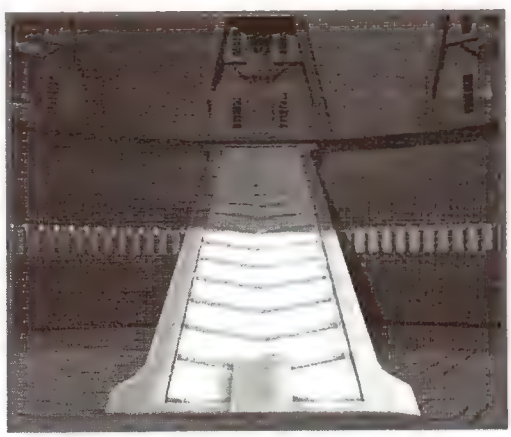


FIGURE 7-9. RAMP TO NOWHERE. THIS RAMP LEADS TO A LOCKED DOOR. HOW CAN YOU SWIVEL IT OVER TO THE OPEN DOOR AT THE FAR LEFT?

- Turn right and click on the blue-framed plate on the wall (described as a "recess in wall") for a close-up view. An icon of a tuning fork is etched in the plate.

- Use Fork 4 (the four-lined tuning fork) on the icon.

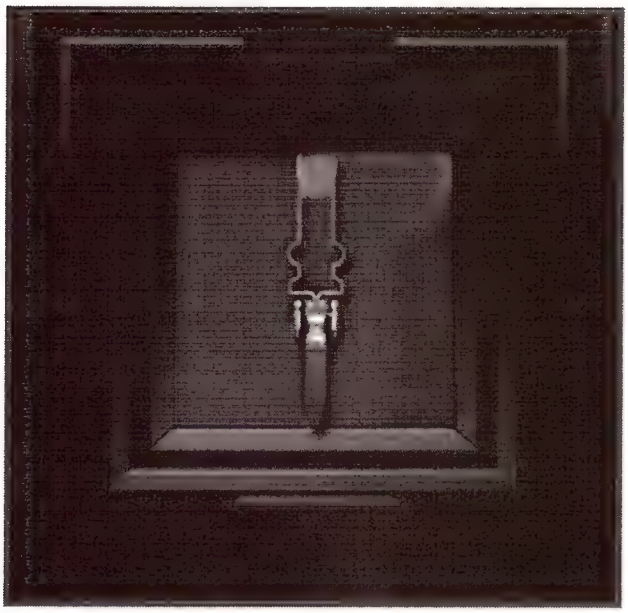


FIGURE 7-10. FORK THIS. INSERT FORK 4 IN THIS RECESSED WALL PLATE TO MOVE THE RAMP.

Hear that noise? If you back up and look at the ramp, you'll see that it moved one door to the right. Each time you use Fork 4 on the wall plate, the ramp moves again.

- Use the four-lined tuning fork five more times to line up the ramp with the open door.

- Climb the ramp into the elevated room.

- Turn left and approach the window.

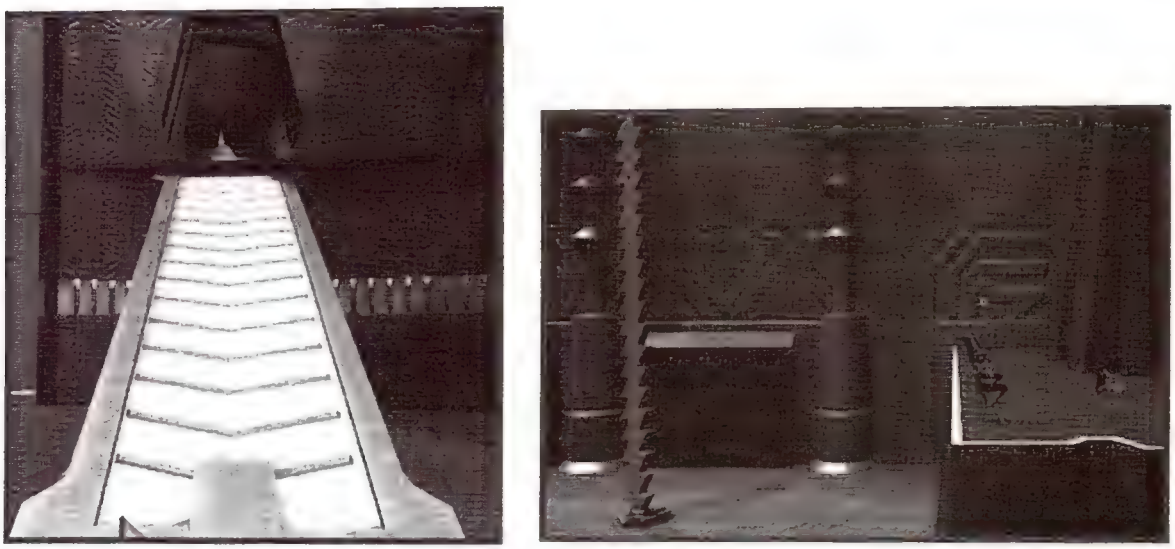


FIGURE 7-11. A ROOM WITH A VIEW. CLIMB THE RAMP TO THE ELEVATED ROOM AND LOOK OUT THE WINDOW. HEY, SOMEBODY KNOCKED OVER A CHAIR ON THAT PLATFORM.

From the window, you can see the top of the raised platform. Boy, that pillar is really jagged. It would make a great stairway, wouldn't it? Look at that row of avian perches lining the front of the platform. Must be a viewing stand. One of the perches is tipped over.

- Back up, turn right, and step forward to the far end of the room.
- Turn around to face the door.
- Pick up the piston device just to the right of the door.
- Examine the device up-close. It appears to be one of those hydraulic pistons used on the maze controller.

FIGURE 7-12. YOU DON'T KNOW JACK? OK, IT'S NOT MEANT TO BE A JACK. BUT IT COULD *FUNCTION* AS ONE.

- Exit the elevated room.
- Go back to the jagged pillar.
- Click on the base of the jagged pillar for a close-up view.
- Put the piston device on the pillar base.
- Click on the piston device to jack up the pillar.

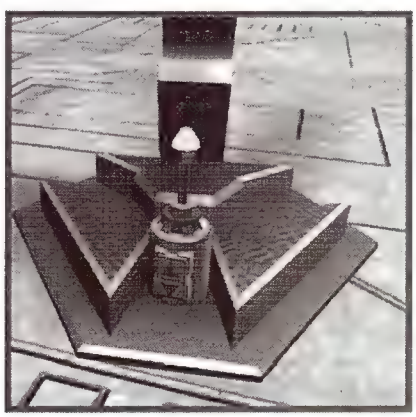


FIGURE 7-13. ALL JACKED UP. USE THE PISTON DEVICE TO MAKE YOURSELF A NICE SET OF STAIRS UP TO THE VIEWING STAND.

- Back up, then click on the tilted pillar to climb up to the raised platform.
- On the platform, turn right.
- Take the tipped-over avian perch.
- Turn right again and go back down the pillar.

Now you have something to stand on so you can reach that handle above the triangle door on the tetrahedron building. You can go there now, if you want. But first, let me show you something. If you've explored the plaza on your own, you may have run across the bright mural (see Figure 7-14 just below) featuring two myrmicats and an iconic depiction of a melon.

FIGURE 7-14. NICE PAIR OF MELONS. THOSE MYRMICATS SURE LOVE THEIR MELONS, DON'T THEY?

- Go back to the triangular door in the tetrahedron building.
- Put the avian perch on the top step.
- Click on the handle to climb onto perch.
- In the close-up, click on the handle again to open the door.
- Step back, then enter the tetrahedron building.
- Approach the alien machine and pull the red handle to activate the device.

Notice the eight-position dial. Give it a few turns and watch it cycle through a series of icons. Do any look familiar? Recall the depiction of the melon on the mural.

- Turn the dial to display the melon icon on the screen. (See Figure 7-15 below.)
- Pull the handle to the right of the dial to lock-in the picture. Do you hear that mechanical sound?

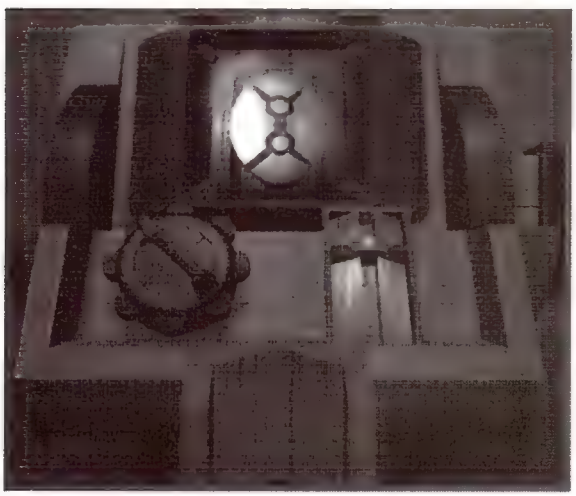


FIGURE 7-15. MELON ICON.
CYCLE TO THE MELON AND LOCK IT IN WITH THE SLIDER HANDLE.

- Exit the tetrahedron room.
- Go forward, right twice, forward twice, turn left, and go forward to the Avian Lair cover.

Great, another impenetrable door. How do you get it open? Answer: You don't. You have to be *invited* in. Where are your manners?

FIGURE 7-16. LAIR COVER. OK, YOU'VE UNCOVERED THE COVER. BUT HOW DO YOU REMOVE THE UNCOVERED COVER?

- Return to the maze.
- Go to the Octospider Plaza.

Octospider Plaza

Welcome to the multicolored Octospider Plaza. In general, you want to explore the Octospider Plaza in a counterclockwise direction.

- After you emerge from the maze, move forward once to the center of the plaza (toward the blue-and-gold dome).
- Turn right and go forward twice toward the alley.

FIGURE 7-17. BACK ALLEY. HEAD FOR THIS ALLEY TO FIND TWO IMPORTANT OBJECTS.

- Turn left and pick up the green jewel.

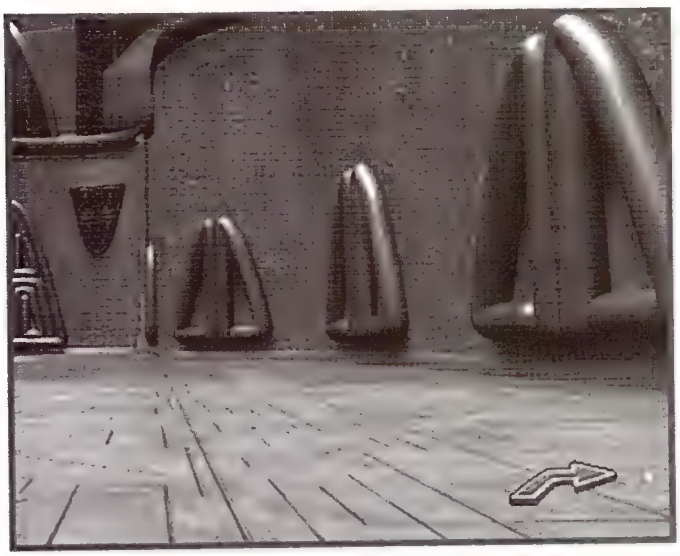


FIGURE 7-18. GREEN JEWEL. IN THIS SHOT, THE CURSOR POINTS TO THE ALL-GREEN JEWEL. DON'T MISS THIS LITTLE OCTO-OBJECT.

- Turn right twice and go forward.
- Pick up the blue filter.
- Return to the center of the plaza.

You'll find a number of these colorful jewels in the octospider areas. This one is all green—your inventory calles it a "green/green jewel"—but most of the other jewels are two-tone.

As you turn counterclockwise, the next alcove holds another maze-controller device, identical to the one in the Avian Plaza. If you still have the maze-controller card, you can use it here. But if you set the controller properly back in the Avian Plaza, the maze is fully accessible. So you can ignore this alcove in the Octospider Plaza.

- Turn to face the alley with the repeating panels (see Figure 7-19 below).
- Move forward twice toward the repeating panels.
- Turn left and move forward to the camera on the ground.
- Take the camera and examine it closely in your "Raman eyes."

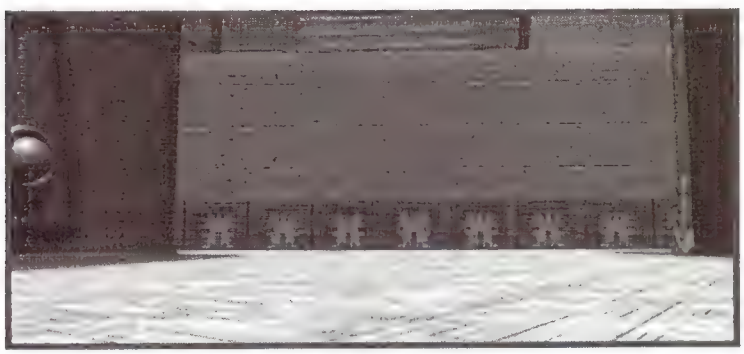


FIGURE 7-19. SHIG'S CAMERA. HEAD TOWARD THIS WALL WITH THE REPEATING PANELS, TURN LEFT, AND GRAB TAKAGISHI'S CAMERA. THEN PULL THE DATA CUBE FROM THE BACK.

- In the close-up of the camera, remove the data cube from the back of the camera.
- Load the data cube in your wrist computer.
- Watch the video from Takagishi labeled "Subj: Octo Plaza." Wow! Octospiders!

FIGURE 7-20. OCTO-SIGHTING. POP THE DATA CUBE FROM TAKAGISHI'S CAMERA IN YOUR ARM COMPUTER AND WATCH THE STUNNING VIDEO.

Finding Dr. Takagishi's camera and data cube is the second of two triggers that initiate an animated sequence. (The first trigger was your examination of the uncovered Avian Lair door back in the Avian Plaza.) When you return to the Avian Plaza and turn to the Avian Lair cover, you will see an avian drop into the lair. If you go to the lair door, you find that it is open.

- From the wall with the repeating panels, move twice back to the center of the Octospider Plaza.
- Turn right to face the maze entrance and go forward once. (Don't enter the maze yet.)
- Turn right to face the alley.
- Go forward into the alley and turn left.

- Pick up the indigo/yellow jewel.
- Turn right twice and continue down the alley to the artifact museum.

Octospider Artifact Museum

- Approach the green display on the left side of the museum.

Puck tells you the item in the locking clamps is Michael O'Toole's anniversary photo. How does he know this? Like me, he has access to the game designers.

- Place the "green/green jewel" in the slot at upper left.
- Take the photo.

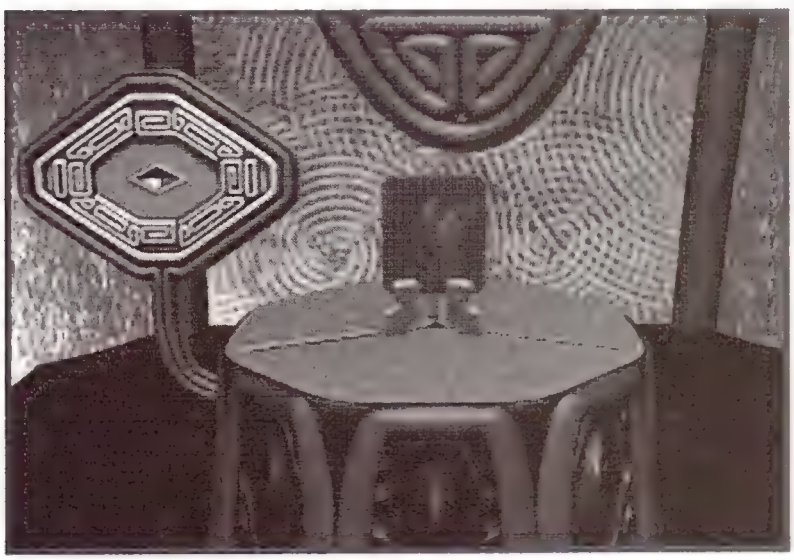


FIGURE 7-21. WHAT A TREASURE. IF YOU'RE AN OCTOSPIDER, I SUPPOSE SOME HUMAN GUY'S ANNIVERSARY PHOTO IS PRETTY INTERESTING.

- Examine the photo closely and turn it over to see the writing on the back. Code!

FIGURE 7-22. BOMB CODE CLUE. TURN OVER THE PHOTO. THAT CIRCLED NUMBER IS A CRITICAL PIECE OF INFORMATION. IN *RAMA*, IT CAN BE 19, 20, 21, OR 22.

Yes, this is part of the bomb deactivation code. Figuring out the code is a very complicated process, and I won't go into it here. For now, just be content that you have an important piece of the code. (We'll have a thorough discussion of the bomb deactivation code in chapter 10: "The Human Lair.")

- Go to the black display holding a prism at the far end of the museum.

- Activate the flashlight on your ISA multi-tool. (If the red shard is still attached, click on the shard in the close-up view to remove it.)

- Shine the flashlight on the prism. See how the colored light shines on the lockplate?

- Put the flashlight back in inventory.
- Click on the round disks on the left side of the prism platform to rotate the platform.
- Shine the flashlight on the prism again. Continue this "dial and shine" process until the colored light falling on the lockplate is yellow and orange, matching the yellow/orange lock combination. The prism is released.

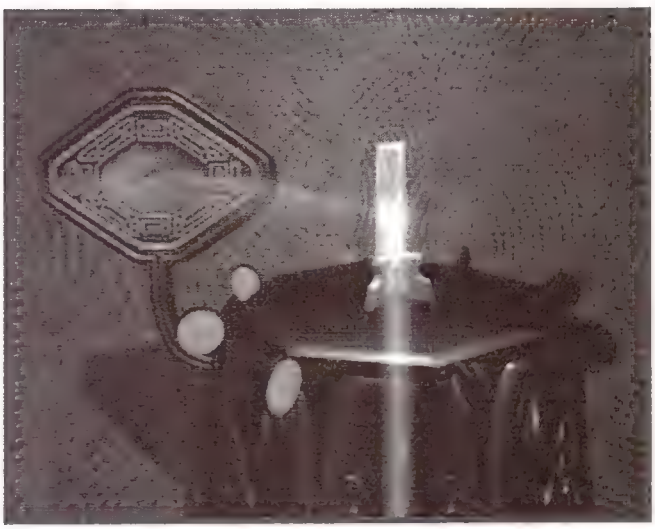
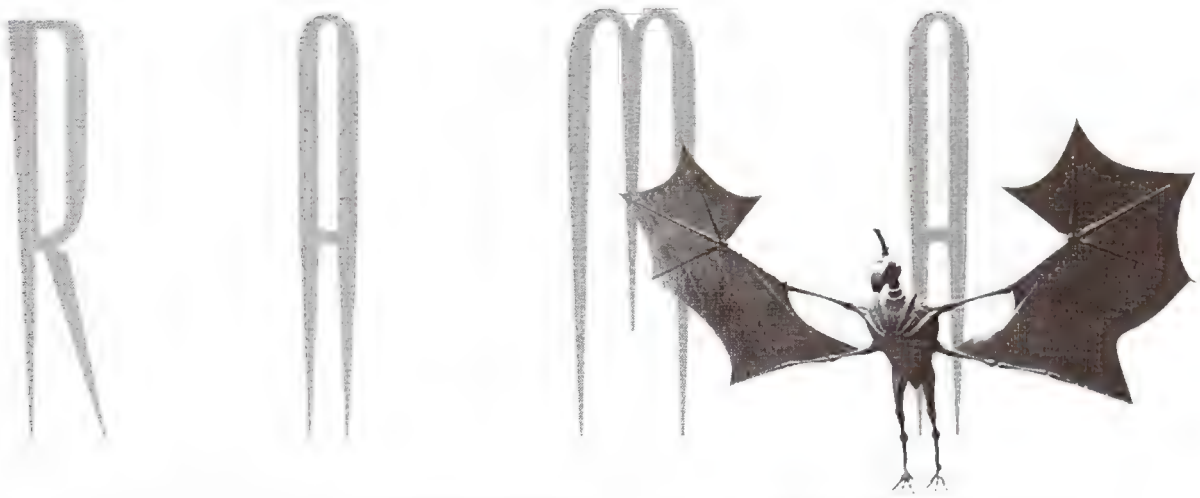


FIGURE 7-23. DIAL AND SHINE. ROTATE THE PRISM TO THE RIGHT SETTING TO SHINE A YELLOW/ORANGE LIGHT ON THE LOCKPLATE.

- Exit the museum.



Octospider Plaza

- Go out to the triangle door on the octohedron building in the plaza.
- Click on the lockplate to the left of the door. (Puck will tell you that the device has a photosensitive plate.)
- In the close-up view, put the prism in the triangular slot.
- Shine your ISA multi-tool flashlight on the prism. A spectrum spreads across the photosensitive lockplate and the door opens.
- Enter the now-open door.

FIGURE 7-24. RAINBOW. SHINE YOUR FLASHLIGHT ON THE PHOTOSENSITIVE LOCKPLATE AND GET COLORFUL RESULTS.

Octohedron Room

A device in this room features three monitors across the top, with a color swatch above each monitor. One short slider knob designates which monitor is active. Three long slider knobs to the left adjust the colors on the active monitor; each of these knobs can be placed in five different settings.

- Press the red button to activate the device.
- Move the far-right slider to the bottom position to activate the left monitor.
- Adjust the three long sliders until the screen color of the left monitor color matches the color swatch above it. (See Figure 7-25 for the correct settings.)
- Move the far right slider then repeat this process with the other two monitors. (See Figures 7-26 and 7-27 for the correct settings.)

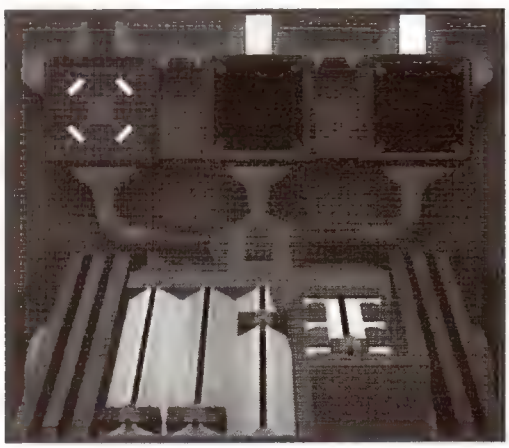


FIGURE 7-25. LEFT MONITOR SETTING. HERE ARE THE SLIDER SETTINGS TO LOCK-IN THE CORRECT COLOR FOR THE LEFT MONITOR.

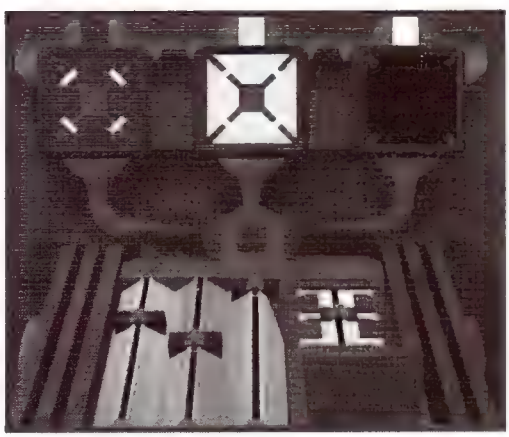


FIGURE 7-26. MIDDLE MONITOR SETTING. HERE ARE THE SLIDER SETTINGS TO LOCK-IN THE CORRECT COLOR FOR THE MIDDLE MONITOR.

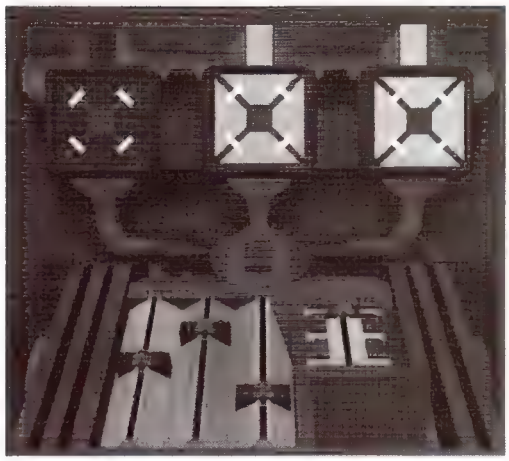


FIGURE 7-27. RIGHT MONITOR SETTING. HERE ARE THE SLIDER SETTINGS TO LOCK-IN THE CORRECT COLOR FOR THE RIGHT MONITOR.

- Exit the octohedron building.

Octospider Plaza

- Return to the alley with the repeating panels. (It's straight ahead after you exit the octohedron building.)
- Note that the second panel from the right now reveals a door. This is the entrance to the Octospider Lair.
- Click on the access panel to the left of the door.
- Place the octospider talisman in the bottom slot.

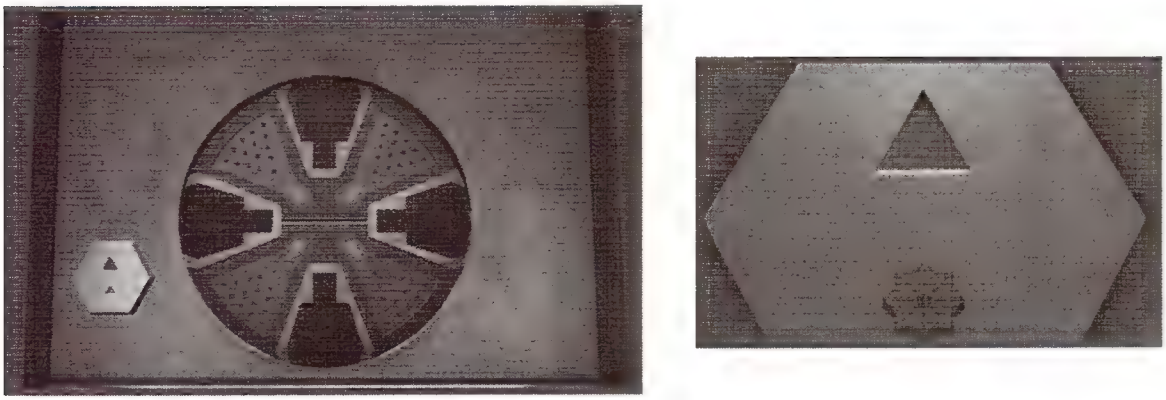


FIGURE 7-28. LAIR DOOR. SOLVING THE PUZZLE IN THE OCTOHEDRON BUILDING REVEALS THE DOOR TO THE OCTOSPIDER LAIR. THE OCTOSPIDER ICON IS ONE KEY; THE OTHER KEY IS IN THE AVIAN LAIR.

You must still find the second key to the Octospider Lair. It's in the Avian Lair, but don't go there yet. First, let's visit the third and final plaza.

- Return to the maze and go to the Human Plaza.

Human Plaza

Being human, you probably can't resist the urge to fully explore the plaza. Go ahead. You have plenty of time to wander around aimlessly, staring at things. RAMA won't slam into Earth in a fireball of cataclysmic horror for a couple more weeks. And there are some useful items scattered around.

- Turn right and go forward to examine the door in the wall.

- Look down to see that a very deep crevice denies access to the door.

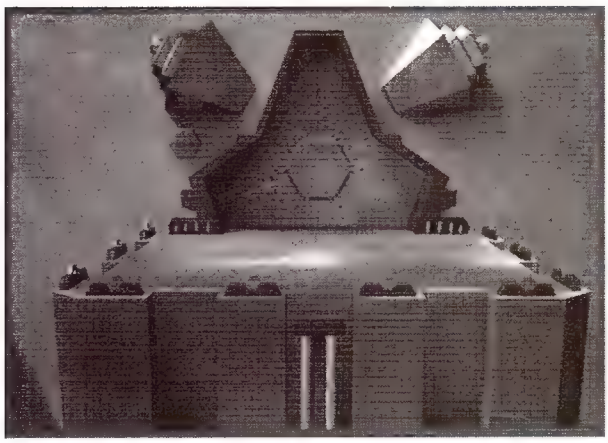


FIGURE 7-29. LONG JUMP. THAT DOOR ACROSS THE CREVICE LOOKS IMPORTANT. MAYBE CARL LEWIS COULD REACH IT.

- Turn around and return to the maze entrance.
- From the maze entrance, go to the red-tiled center of the plaza.
- Turn right to face the wall with the light-colored vertical rectangles.
- Move forward and pick up the blue/yellow jewel.

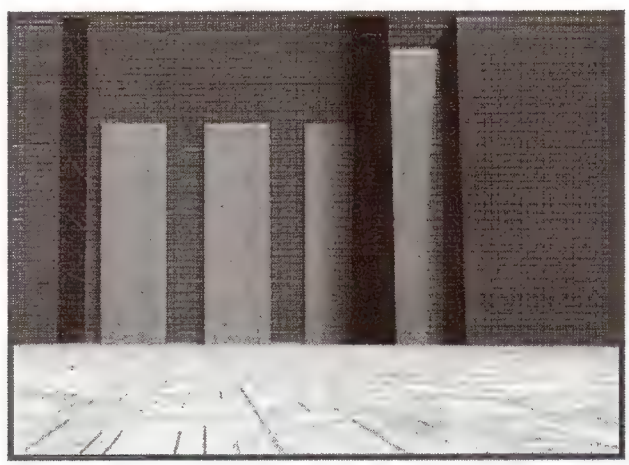


FIGURE 7-30. BLUE/YELLOW JEWEL. RIGHT OUT IN THE OPEN! YOU'D THINK PEOPLE WOULD BE MORE CAREFUL WITH THEIR FAMILY JEWELS.

- Turn around and go back to the red-tiled plaza center.
- When you reach the plaza center, turn right twice to face the maze-controller alley.
- Enter the alley and turn right.
- Pick up the green/red jewel at the corner of the alley.
- Exit the maze-controller alley and return to the plaza center.
- Turn right twice to face the pyramidal building with the triangle door.
- Approach the triangle door.
- Turn right and click on the statue of the tuning fork for a close-up view.
- Use Fork 1 (the tuning fork with one red line) on the tuning fork statue.
- Turn left and watch the mantis biot exit from the pyramid-shaped structure.

If you've already set the maze-controller piston to its rightmost position (as in this walkthrough) to open all three maze gates, you need not do anything else here.

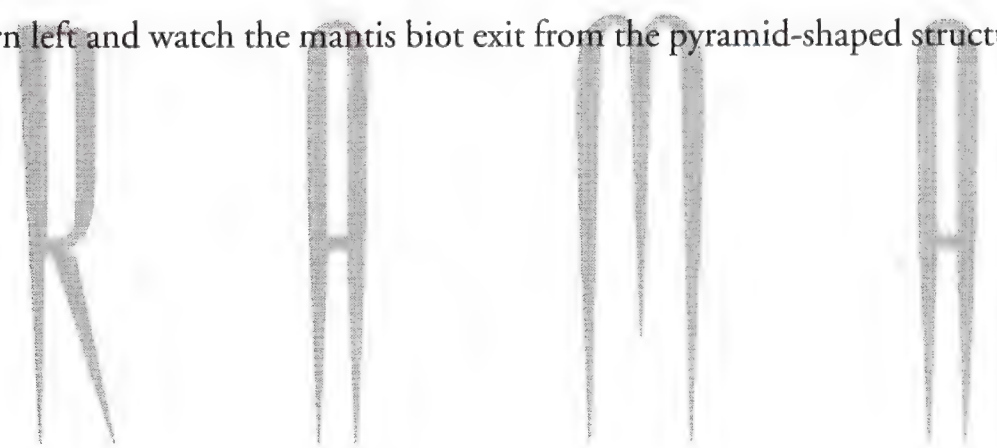
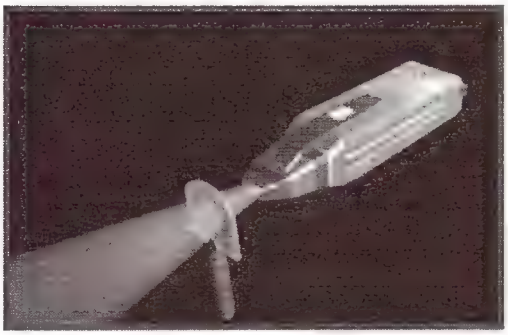


FIGURE 7-31. PLAY A MANTIS TUNE. INSERT THE PROPER FORK INTO THE TUNING FORK STATUE TO TRIGGER A MANTIS MARCH TO THE SKYSCRAPER ENTRANCE ACROSS THE ALCOVE.

The mantis biot ambles over to the skyscraper across the alcove. As in the London trash pit, the mantis shoots a beam of light—blue, this time—at a light sensor panel. This opens the door to the skyscraper, and the mantis enters. Once again, you must mimic this process with your ISA multi-tool flashlight and the blue filter you found in the Octospider Plaza.

- Go to the mantis door for a close-up.
- In inventory, combine the ISA multi-tool flashlight with the blue filter to create a blue light.
- Shine the blue light on the light sensor next to the mantis door. The door opens.



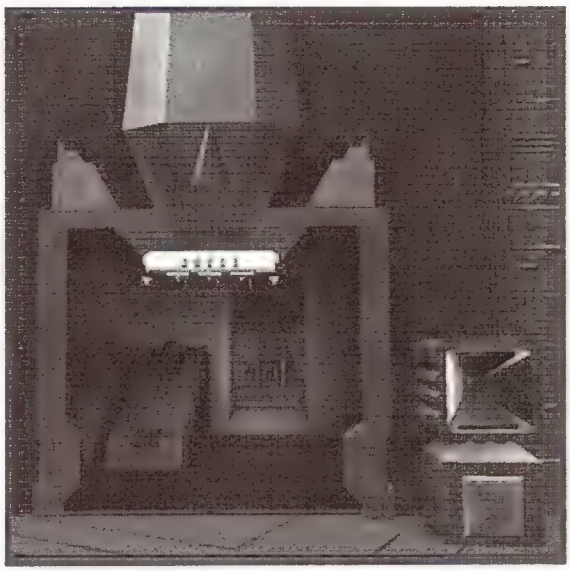


FIGURE 7-32. BLUE LIGHT SPECIAL. COMBINE THE BLUE FILTER WITH YOUR ISA FLASHLIGHT AND SHINE IT ON THE LIGHT SENSOR TO OPEN THE SKYSCRAPER.

- Go through the door.

Skyscraper: Human Plaza

After you enter the skyscraper, you face some machinery, a schematic or map, and an open compartment with a chair. Puck tells you it's part of a subway system. What the hell, dude. Let's ride!

- Enter the subway car.
- Note the indicator light on the control panel schematic.

There are five positions on the schematic, indicating five subway stops for this car. Remember, you entered from the Human Plaza. So the lit indicator on the schematic represents the plaza stop. The subway car moves from stop to stop in a counterclockwise direction.

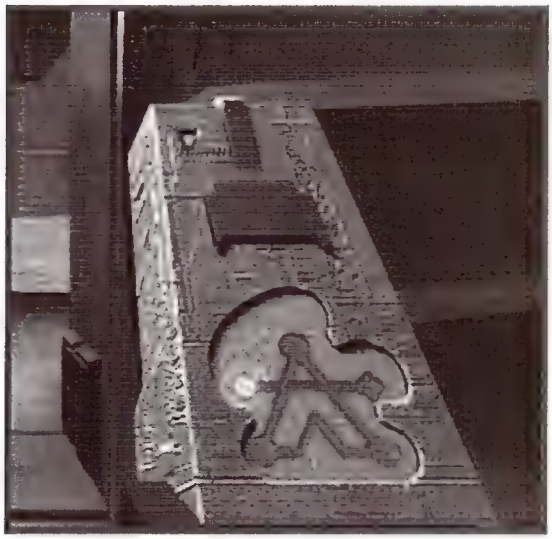


FIGURE 7-33. PLAZA STOP. THE SCHEMATIC WITH THE INDICATOR LIGHTS DISPLAYS YOUR LOCATION.

- Press the red button to activate the car.
- When you arrive, note the newly lit indicator on the display. You've arrived at Puzzle Room #1.

Skyscraper: Puzzle Rooms

The subway takes you to a small room. Puck detects electronic devices inside. Here? On RAMA? Shocking.

- Exit the subway car.
- Step into the room and examine the displays.

Each Puzzle Room in the skyscraper contains the same basic set of displays. On the far wall, you find a significant hint about the nature of this Raman puzzle. Note the blue bars arranged from left to right according to size.

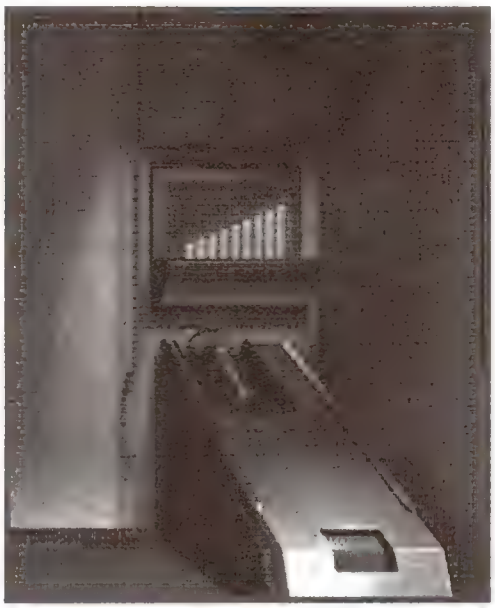


FIGURE 7-34. BIG HINT. SOMEBODY ARRANGED THOSE BLUE BARS FROM SMALLEST TO BIGGEST, LEFT TO RIGHT. APPLY THAT THINKING TO THE ANIMALS IN THE MONITORS.

- Turn to face the monitors—nine empty monitors in a horizontal row, three monitors with pictures in a vertical column.

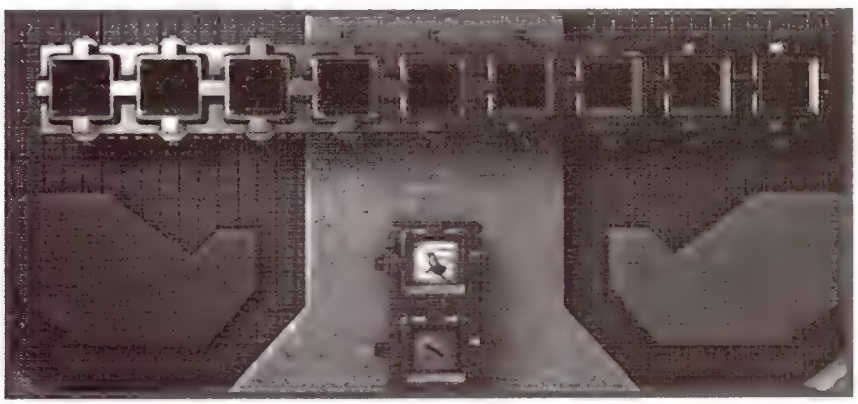


FIGURE 7-35. MONITOR MANIA. YOU COULD JUST SIT AND WATCH TV. BUT IT MIGHT BE MORE FUN TO PUT THE ANIMALS IN ORDER, SMALLEST TO BIGGEST, LEFT TO RIGHT.

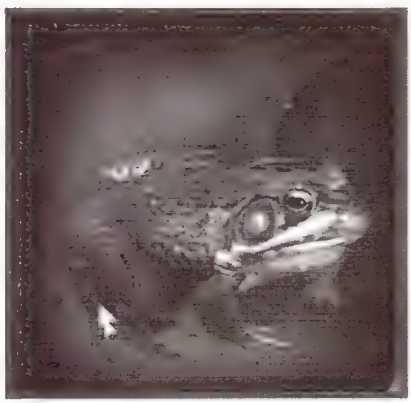
- Zoom in for close-up views of the three pictures in the vertical column of monitors.

Earth creatures! Nice photos, too. Apparently, these Ramans have very good cameras. Recall the blue bars hint. The idea is to arrange the Earth creatures according to size, smallest to biggest, left to right.

FIGURE 7-36. ANIMAL PUZZLE, PART ONE. SIZE UP THE FIRST BATCH OF EARTH CREATURES.

- Put the seal in the 7th monitor from the left.
- Put the eagle in the 6th monitor from the left.
- Put the one-cell creatures in the 1st monitor from the left.
- Get back in the subway car and push the red button to travel to the next stop.

- In Puzzle Room #2, examine the three pictures in the vertical column of monitors.



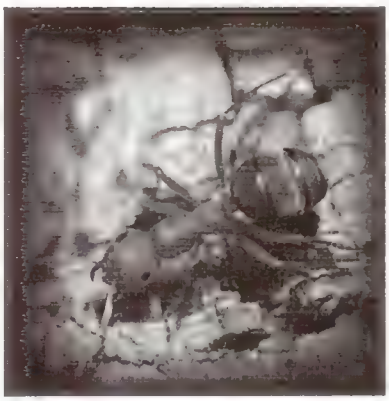


FIGURE 7-37. ANIMAL PUZZLE, PART TWO. SIZE UP THE SECOND BATCH OF EARTH CREATURES.

If you place a picture in the wrong frame on the nine-monitor horizontal row, it will disappear from the horizontal row when you travel in the subway car to the next stop. But if you place a picture in the *correct* monitor, it stays there while you travel, and it will be in the equivalent monitor in the other puzzle rooms.

- Put the frog in the 4th monitor from the left.
- Put the ant in the 2nd monitor from the left.
- Put the cat in the 5th monitor from the left.
- Get back in the subway car and push the red button to travel to the next stop.

Oops! You can't get out here. The door is locked. You have to solve the nine-monitor puzzle before it will open.

- Push the red button to travel to the next stop.
- In Puzzle Room #3, examine the three pictures in the vertical column of monitors.

FIGURE 7-38. ANIMAL PUZZLE, PART THREE. SIZE UP THE THIRD BATCH OF EARTH CREATURES.

- Put the snail in the 3rd position from the left.
- Put the cow in the 8th position from the left.
- Put the elephant in the 9th position from the left.
- Get back in the subway car.
- Push the red button and ride four times to return to the previously -locked stop.

When you arrive, yet another subway car awaits. This is a subway exchange. Seems the island's designation as "New York" is pretty appropriate.

- Cross over to the new subway car.
- Press the red button to travel to another stop.
- When you arrive, exit the subway car.
- Press the yellow button on the console.

Watch the hydraulic machinery at right lift a platform. Then look up at the plaza above to see where it went. Looks like the platform has formed a bridge across a crevice. Remember that crevice in front of the door up in the plaza?

FIGURE 7-39. PLATFORM LIFTS. CONGRATULATIONS. YOU JUST MADE A BRIDGE. NOW GO SEE WHAT IT SPANS.

- Ride the subway car back to the exchange point.
- Cross to the other car and ride it back to the plaza stop.
- Exit to the plaza.

Human Plaza

- Return to the door behind the crevice near the maze entrance. Sure enough, a bridge now spans the crevice.
- Cross the bridge to the door. This is the entry to the Human Lair.
- Click on the lockplate to the left of the door for a closer view.
- Place the human talisman into its proper position, the one with three triangular slots.

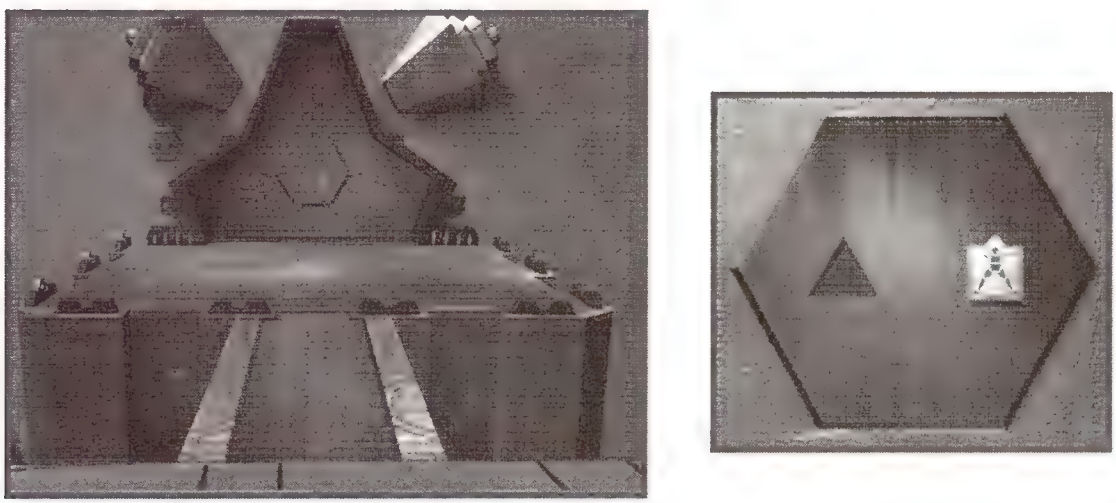


FIGURE 7-40. LAIR DOOR. YOU'VE BRIDGED THE GAP TO THE HUMAN LAIR DOOR, AND YOUR HUMAN ICON FITS ONE LOCK. BUT YOU NEED ANOTHER KEY.

As at the Octospider Lair door, you're still missing a key. Both of the these missing keys are in the Avian Lair. Time to descend into the underground.

- Take the maze back to the Avian Plaza.

Avian Plaza

- When you enter the plaza, turn right to see an avian disappear into the lair entrance.
- Approach the now-open Avian Lair entrance.

Chapter 8
The Avian Lair

THE AVIAN LAIR IS A "GAME WITHIN A GAME" (as the designers put it), which must be played to completion before you can return to the rest of RAMA. When you solve all Avian Lair puzzles and exit, you trigger a game timer … Heilmann's nuclear bombs. The most efficient way to defuse the bombs before they explode is to complete other tasks—in particular, to uncover the lair openings in the other two pliazzas—*before* entering the Avian Lair. In this walkthrough, of course, we've done that.

Lair Entrance

When you arrive at the open lair, the avian sits on a ledge one level down. Suddenly, it flies across the shaft beneath you. You hear squawking and doors closing. Then a series of ledges extends from your side of the shaft.

FIGURE 8-1. LAIR SHAFT. BOY, THAT'S A BIG BIRD. LOOKS LIKE A MULTI-LEVEL FACILITY DOWN IN THAT SHAFT.

- Climb down into the lair.

Level One

Quick reconnaissance reveals several things. One, this is only the first of several levels. Two, you can't climb back out of the pit. Three, there is a corridor across the pit, but you can't reach it. And four, there is also a corridor behind you. Its doorway is marked with a single indicator light ... which indicates, no doubt, that this is Level One of the lair.

- Look up, turn around, and go down the corridor.
- Approach the door at the end of the corridor.

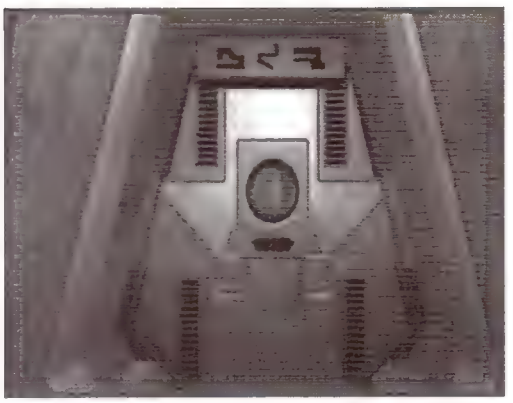


FIGURE 8-2. ROOM NUMBERS. EVERY ROOM IN THE AVIAN LAIR IS MARKED BY A MYRMICAT NUMBER OVER THE DOORWAY.

Note the myrmicat numbers over the door. You can use your number box (or your photographic memory) to confirm that these digits, translated to human Base Ten, are 7, 2, 15. A green porthole and an acoustic device—Puck calls it an "audio receiver"—are attached to the door.

- Click on the green porthole to look through the door. What's in there? (Answer: It's the Security Room. But you didn't hear it from me.)
- Turn around and take a step forward.
- Turn right and enter the room with the strange cistern.

Level One: Cistern Room

- Turn left and approach the wall switch.
- Pull down the wall switch.
- Go back and observe the cistern.

FIGURE 8-3. WATER TORTURE. EACH DRIP EVOKES A SQUAWK ... THE AVIAN WORD FOR THE ILLUMINATED MYRMICAT NUMBER.

Is that odd, or what? Each successive drop of water from the spigot illuminates one of the myrmicat numbers arrayed around the display. Each drop prompts an avian squawk, too. Each squawk is different. Could this be the sound of an avian counting?

- Exit the room.
- Go back down the corridor to the Level One ledge.
- Descend to the Level Two ledge.

Level Two: Great Hall

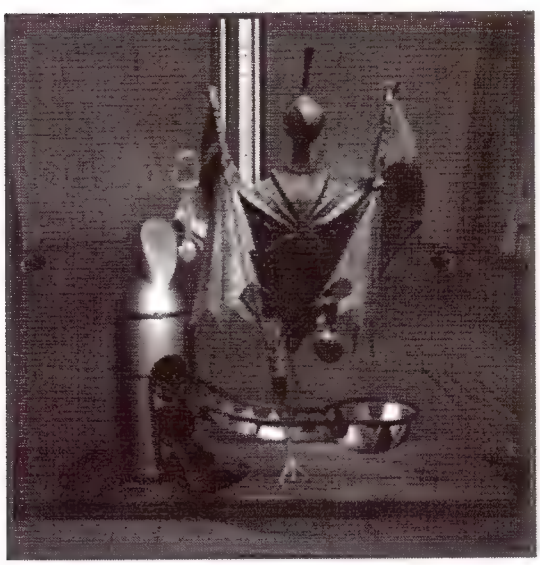
- From the ledge, go down the corridor into the Great Hall.
- After entering the hall, turn back to the door.

Note that an avian guard now blocks your exit from the hall. Note also that the myrmicat numbers above the door translate to 4, 12, 15.

FIGURE 8-4. NONE SHALL PASS. NOT YET, ANYWAY. NOTE THAT MYRMICAT NUMBER OVER THE GREAT HALL DOORWAY.

- Turn and approach the avian in the center of the hall.

The avian pulls a handle and watches an "alien melon" roll out of a dispenser. Then he takes the melon and offers it to you.



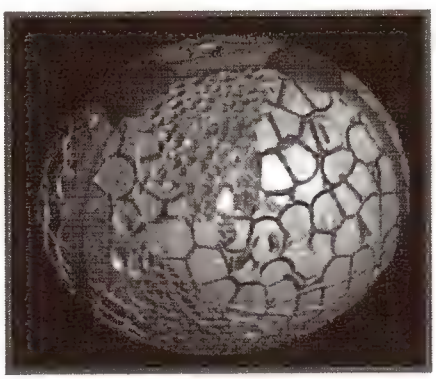


FIGURE 8-5. GOOD EATIN'. TAKE THE AVIAN OFFERING. IT LOOKS LIKE A GLOBE IN A HAIRNET, BUT IT'S ACTUALLY A MELON. QUITE DELICIOUS, TOO.

- Accept the avian's melon offering.
- Extend the knife attachment on your ISA multi-tool. (You may need to remove the blue glass lens first, if you haven't already.)
- In inventory, use the ISA multi-tool knife on the alien melon to cut it in half.

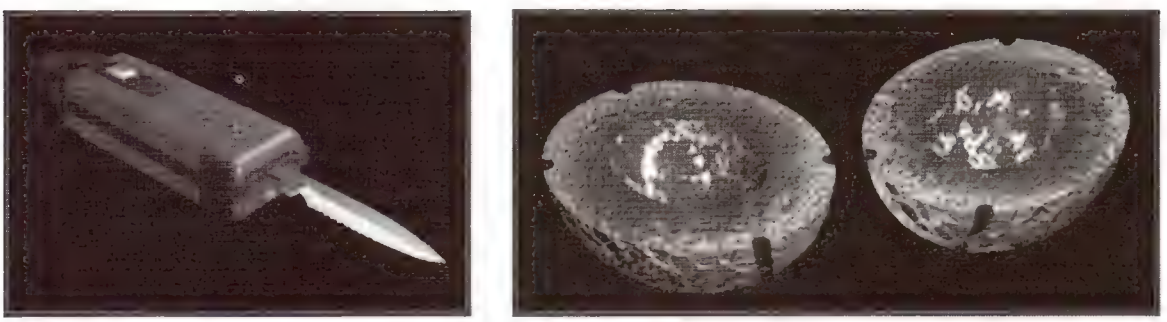


FIGURE 8-6. MAKE MELON HALVES. YOU KNEW THAT ISA KNIFE WOULD COME IN HANDY. DOESN'T THAT SPLIT MELON LOOK APPETIZING?

- Examine your ISA multi-tool and extend the spoon attachment.
- In inventory, use the ISA multi-tool spoon on the melon halves to eat one half.

Wow! Altered states! Notice that you can see new designs on the wall mosaics. Note also that these designs disappear aftet a few moments. Obviously, this melon stuff heightens your perception for a brief time.

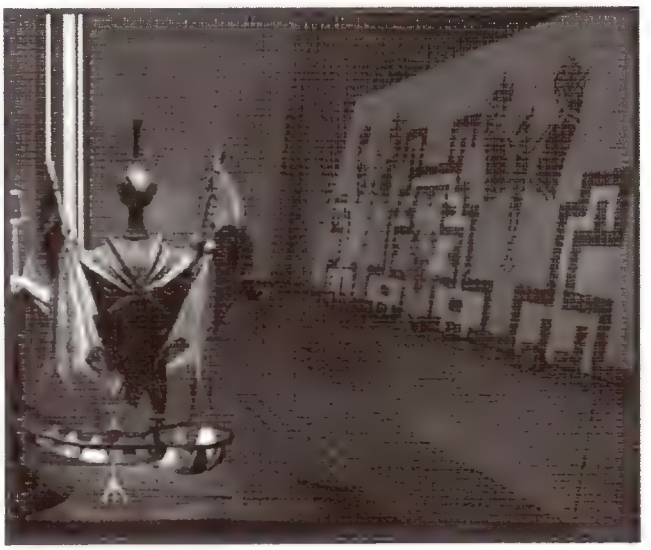


FIGURE 8-7. RAMA REVEALED. WHOA, CHECK OUT THE WALLS, MAN. BETTER SCORE MORE OF THESE LATER.

- Offer the other half of the melon to the avian. It eats, flies across the room, and beckons for you to follow.
- Go forward to the avian. It gestures to the elevator.
- Ride the elevator up to the perch of the three avian kings.
- The avian muckymuck on the right offers you a gift. Take it.

FIGURE 8-8. WE THREE KINGS. THIS GIFT FROM THE AVIAN ELDERS MUST BE IMPORTANT. JUST LISTEN TO THE SUDDENLY REGAL POMP OF THE MUSIC.

Examine the gift closely, noticing that each of the sixteen buttons represents a number (depicted by triangles) and emits an avian squawk. The squawks echo the ones from the counting device in the cistern room. Obviously, this is a translator. When you press a button, the box "speaks" the number of that button in avian language.

- Turn around to view all the other roosting avians. Man, what a cool bunch of guys.
- Turn back to the three avian kings to descend on the elevator.
- Go to the melon machine.
- Pull the handle and take the melon that appears.
- Get at least two more melons. (More is better.)
- Turn around and go through the doorway. The avian guard is gone.
- Return to the Level Two ledge.
- Descend to the Level Three ledge.

Level Three: Theater

- Go down the corridor.
- Observe the end of the avian play rehearsal down on the stage.

- Move forward to the myrmicat seats.
- Turn left and approach the gourd light. Puck will explain that the gourds are filled with oil.
- Take the broken gourd light.

FIGURE 8-9. GOURD'S GOLD.
THAT BROKEN GOURD IS STILL FULL OF OIL.
REMEMBER: THE SQUEAKY
WHEEL GETS THE GREASE.

- Turn right and go through the corridor that leads backstage.
- Step into the dressing room.
- Turn around to encounter the avian thespian, who haughtily struts forward and flies away.
- Turn to the costume racks. On the right is a myrmicat costume. On the left, an octospider costume . . . with something hanging from it.
- Take the object hanging from the octospider costume. Your inventory calls it a "costume pendant."

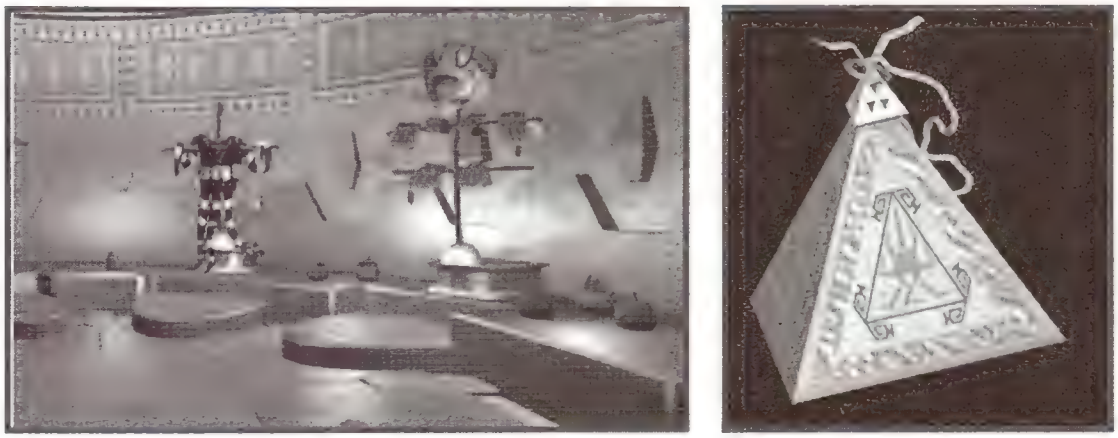


FIGURE 8-10. KEY ACQUISITION. SOMETHING'S HANGING ON THE OCTOSPIDER COSTUME IN THE DRESSING ROOM. IT COULD BE A KEY DISCOVERY.

- Exit the backstage dressing room.
- Exit the theater. On the way out, notice another three-digit myrmicat number over the doorway: 0, 4, 6.
- When you reach the Level Three ledge, turn around to face the corridor again.
- Click on the bridge mechanism near the floor.
- In the close-up view, click on the manual turning wheel. It turns a bit, but jams with corrosion.
- Use the oil-filled gourd to lubricate the bridge mechanism.
- Click on the manual turning wheel again. It turns quite nicely now.
- Cross the now-extended bridge.

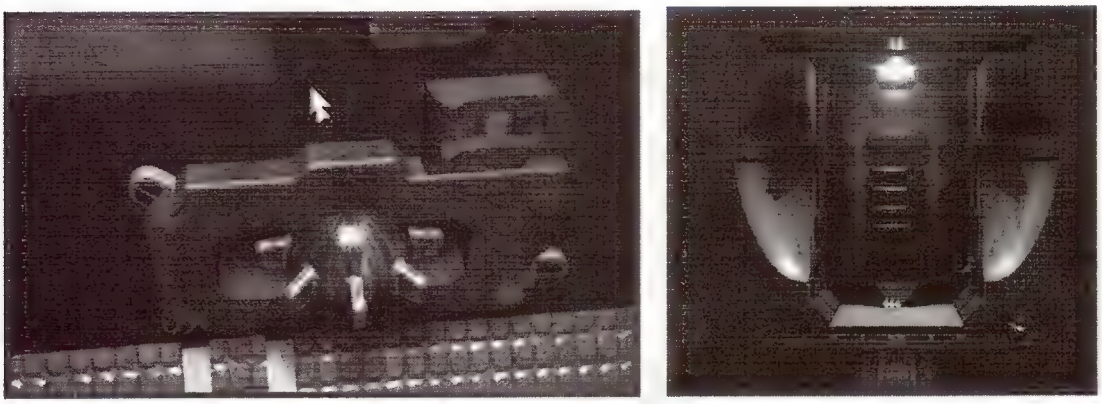


FIGURE 8-11. OILED AND EXTENDED. POUR THE GOURD ON THE BRIDGE MECHANISM AND SPIN THE WHEEL. THE OTHER SIDE OF THE SHAFT AWAITS.

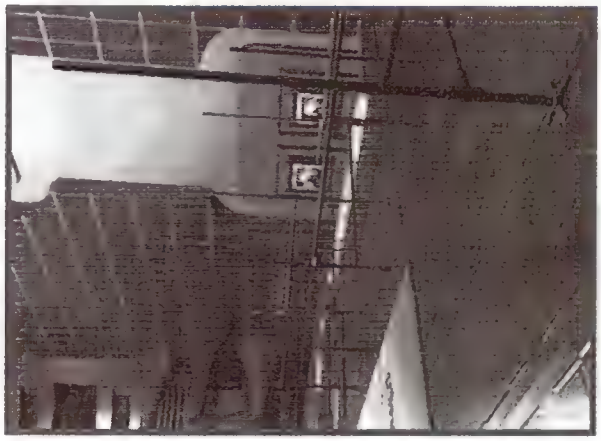
- On the other side of the shaft, climb up to Level Two.

Tip

Watch for the Avian flying overhead when you look up at the "jungle gym" bars.

Level Two: Hatchery

- Go down the corridor to the Hatchery.
- Head to the right of the big column in the center of the room.
- Look up to see the elevated room at the top of the "jungle gym" bars.
- Step forward twice to the bottom of the bars and look up again.
- Grab the bars and climb them to the elevated room.
- At the top, turn left, and grab the alien cable.



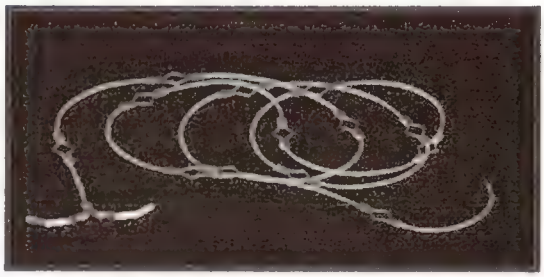


FIGURE 8-12. GO FOR IT, MONKEY BOY. CLIMB TO THE ELEVATED ROOM AND NAB SOME ALIEN CABLE.

- Turn around and climb back down the bars.
- Exit the Hatchery. On the way out, notice the myrmicat numbers over the door: 15, 0, 2.
- Climb down to the Level Four ledge.

Level Four: Schoolroom

- Go down the corridor to the Schoolroom.
- Look around at the murals on the walls.

If you have Puck check out the murals, his ultraviolet sensors indicate that parts of these murals are painted with materials outside a human's normal visual range. Yes! *It's melon time!*

- Approach the mural that depicts levels of the lair shaft with ledges extended.
- Use your ISA multi-tool spoon to eat a melon.
- When your altered vision kicks in, note the myrmicat number associated with extended ledges: 6, 9, 8.

FIGURE 8-13. MELONVISION. THE ULTRAVIOLET IMAGES DEPICT THE NASTY CONSEQUENCES OF LEAVING THE LEDGES OUT WHEN BAD THINGS ARE AROUND. COPY DOWN THAT LEDGE CODE—6, 9, 8.

- Optional: Approach each of the other three murals and eat a melon to see what's revealed.

Before you go, note that you cannot climb up to the lecture podium at the top level of the room. Apparently, you just don't look professorial enough. You need a pipe and a weary attitude. But I digress.

- Return to the exit door and note the myrmicat numbers over the door: 11, 8, 3.
- Exit to the Level Four ledge.
- Climb up one ledge, cross the bridge, and climb twice more to the Level One ledge.

Level One: Security

- Go to the door with the green porthole. This is the Security Room door.
- Click the squawk box (called "avian gift" in inventory) on the acoustic device just below the green porthole.

Remember the myrmicat number above the door? OK, OK, I'll do *everything.* It's 7, 2, 15.

- Click on the buttons that represent 7, 2, and 15.

The Security Room features the console of an elaborate monitoring system to the left, and a sound-activated elevator to the right.

FIGURE 8-14. SECURITY ROOM. HERE'S WHERE BIG BIRD KEEPS HIS EYE ON YOU.

- Approach the console.
- Turn the knob at the left down to the third position. A video picture appears on a monitor, along with another three-digit myrmicat number.
- Click on the picture for a close-up view of the myrmicat pool room.

Remember that all lair rooms are numbered. Type a room number on the console keypad to see a video feed of that room on the active monitor. In some cases you can change the room's configuration by adjusting the slider mechanism at the far right. We'll try this in a moment. But first, for your convenience, here's another look at Base Sixteen myrmicat numbers translated to human Base Ten numbers.

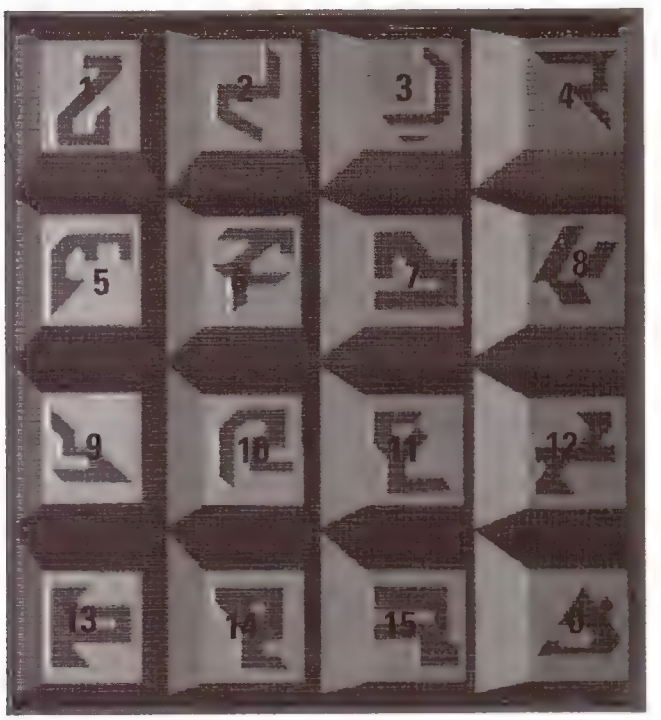


FIGURE 8-15. MYRMICAT KEYPAD TRANSLATED

- Click on the keypad for a close-up.
- Enter the number for the Schoolroom: 11, 8, 3. (Refer to Figure 8-15 above for number translation, or look at Figure 8-16 to see the myrmicat number.)

The Schoolroom appears on the monitor. If you click on the monitor for a close-up view, you'll see it's just the way you left it. But now try this.

- Pull the slider at far right to its bottom setting ... and watch what happens in the monitor.

- Click on the monitor for a close-up view.

Aha! A ramp raised up to the podium. Now you can go back there and lecture on the Roots of Postmodern Kineticism, something you've always wanted to do. (Well, maybe not *always.*) In any case, let's check it out.

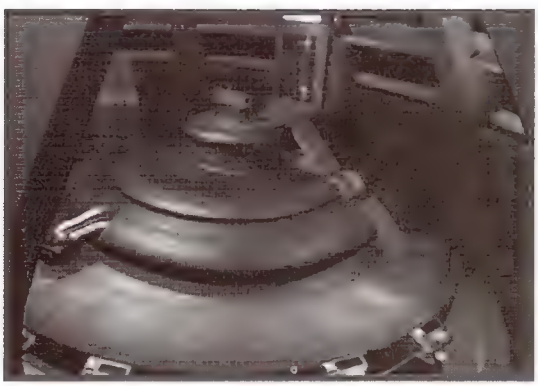


FIGURE 8-16. SURVEILLANCE. I'LL BET THE SCHOOL PRINCIPAL LOVES THIS. PULL DOWN THE RIGHT SLIDER BAR, AND UP GOES THE RAMP TO THE LECTURE PODIUM.

- Go to the Security Room door. It's closed, but that's easily fixed.
- Use the squawk box on the door's acoustic device.
- Enter the numbers 7, 2, 15. The door opens.
- Return to the Schoolroom on Level Four, opposite side of the shaft.

Level Four: Schoolroom

- Go to the ramp that leads up to the podium … the ramp you just extended from the Security Room.
- Climb the ramp.
- Turn left to the podium.

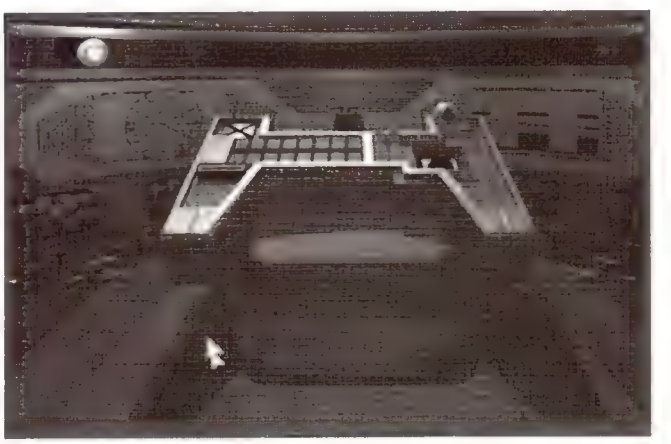


FIGURE 8-17. PROF'S PERCH. SCHOOL LOOKS A HELL OF A LOT DIFFERENT FROM UP HERE, DOESN'T IT?

- Pull the handle to briefly see the hidden figures in the murals around the room.

The device fails after a few moments of ultraviolet vision. Hey, who cares? You've already seen it using the melons.

- Turn twice to see the deep elevator shaft.
- Hook the alien cable on the handle at left.
- Use the cable to climb down the shaft.

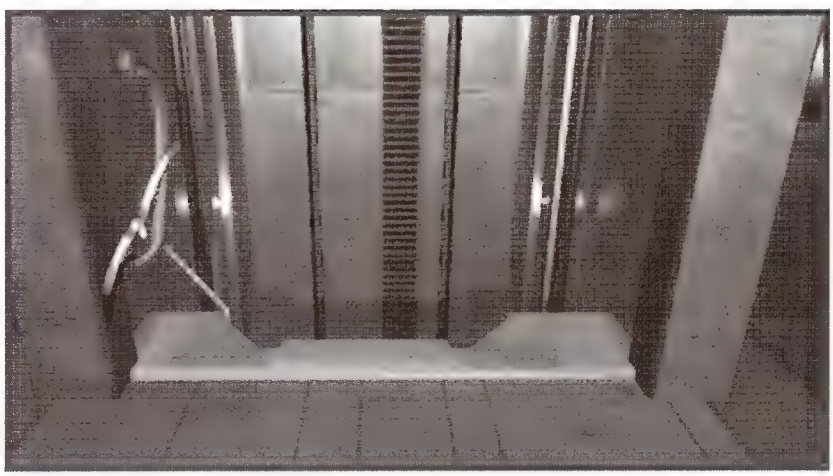


FIGURE 8-18. HOOKED ON CABLE. HOOK THE CABLE ON THE HANDLE AND CLIMB ON DOWN.

Myrmicat Domain

Welcome to the burned-out domain of the myrmicats. A long-ago fire gutted this level, leaving nothing but blackened remnants and charred rubble scattered everywhere. As Puck notes, it appears that the area has been abandoned for a long time.

FIGURE 8-19. MYRMIHEAD. NO CATS IN THIS KENNEL. MAYBE THEY LEFT SOMETHING USEFUL BEHIND.

- From the bottom of the elevator shaft, go forward to the Myrmicat Head sculpture.
- Turn right and follow the corridor into a small room.
- In the room, turn around.
- Take the bowl on the steps to the right.

FIGURE 8-20. MYRMIBOWL. NICE VESSEL. GOOD FOR HOLDING CAT FOOD, MELON JUICE, OR DEADLY CAUSTIC FLUIDS.

- Exit the room.
- Follow the corridor into the pool room.

Warning

Don't touch either of the filled pools! As Puck will say, "My! That fluid seems to be as caustic as lye."

A quick exploration of the area reveals the Human Lair key on the podium in the middle of one of the full pools. But you can't reach it without sloshing through highly toxic liquid and making a visit to Arthur C. Clarke.

- From the open doorway, go forward just to the left of the empty pool.
- Turn right and go up the ramp to the pool controls.
- Click on the controls for a close-up view.

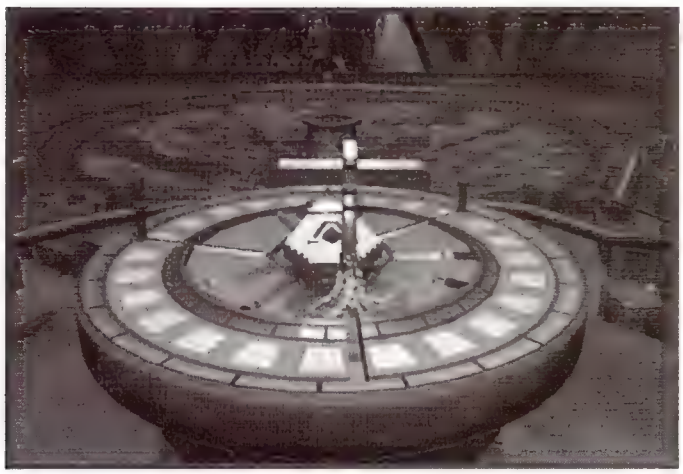


FIGURE 8-21. MYRMIPOOL CONTROLS. PUSH THE RED BUTTON TO EMPTY THE FIRST POOL. THEN FIGURE OUT HOW TO DISSOLVE THAT GUNK ON THE LEVER.

The pointer in the middle of the dial points to the filled pool just ahead. If you push the red button, that pool drains. Clue! The idea now is to do the same to the pool that harbors the Human Lair key. Unfortunately, the raised lever handle seems to be stuck, frozen in place by some green hardened gunk. But hey … didn't Puck say the pool water was "caustic as lye"?

- Go to the remaining filled pool.
- Use the bowl to scoop up some toxic water.
- Go back to the pool controls.
- Dump the contents of the bowl onto the controls.
- Pull back the raised lever handle.
- Click twice on the pointer to turn it left, towards the remaining filled pool.
- Pull up the handle on the opposite side of the pointer.
- Push the red button to drain the pool.

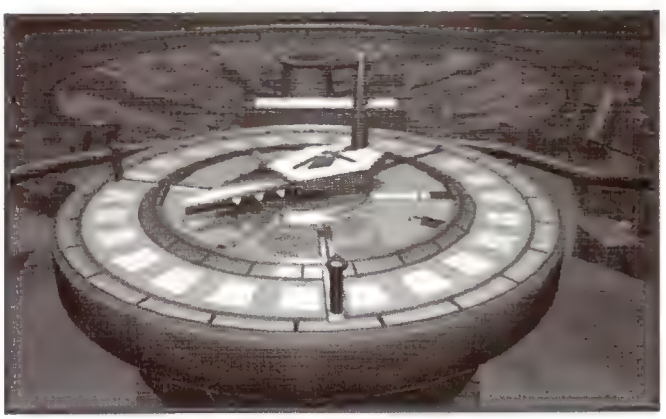


FIGURE 8-22. MYRMIDRAIN. HERE'S THE PROPER CONTROL SETTING TO DRAIN THE FILLED POOL.

- Go to the now-drained pool.
- Click on the pool to get a close-up of the center podium.
- Take the Human Lair key.

FIGURE 8-23. HUMAN LAIR KEY #2. ONCE YOU DRAIN THE POOL YOU CAN GRAB THAT "POOL PENDANT" WITHOUT SEARING THE FLESH OFF YOUR BONES.

- Exit the myrmicat domain by climbing back up the cable in the elevator shaft.
- Exit the Schoolroom and go back to the Hatchery on Level Two, this side of the shaft.

Level Two: Hatchery

- Find the control panel on the back side of the big column in the middle of the room.
- Insert the Human Lair key (called "pool pendant" in inventory) into the red triangular slot.
- Insert the Octospider Lair key (called "costume pendant" in inventory) into the red triangular slot.
- When the compartment opens, take the magnetic card.

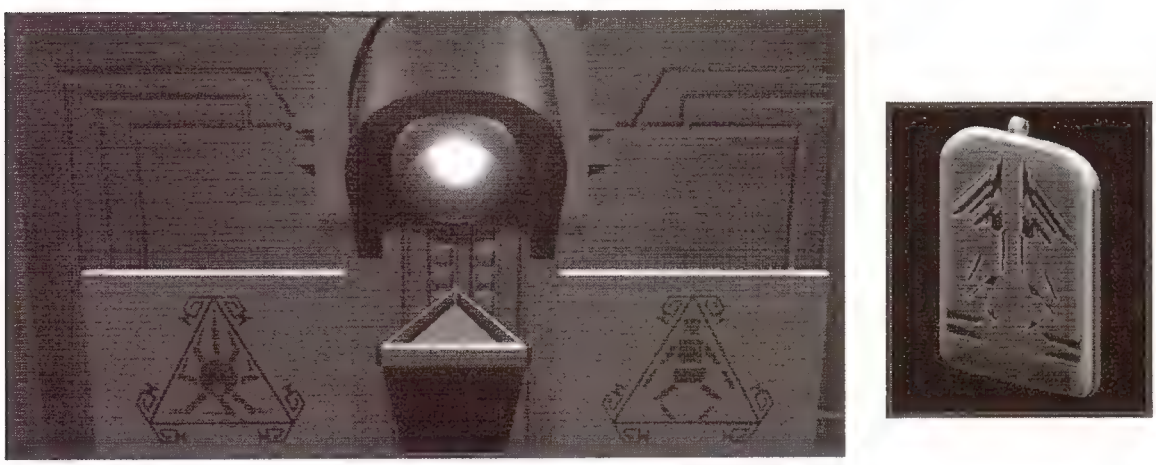


FIGURE 8-24. ID, PLEASE. EXPLORERS SHOULD ALWAYS CARRY AT LEAST THREE FORMS OF IDENTIFICATION. ABOARD RAMA, THIS MAGNETIC SECURITY CARD IS A MUST-HAVE.

- Go back to the Security Room on Level One, other side of the shaft.

Level One: Security Room

- Use the squawk box on the Security Room acoustic device and enter the code: 7, 2, 15.
- Enter the room.
- Approach the elevator.
- Translate the myrmicat number above the elevator door at right: 9, 14, 7.
- Look down to see the acoustic device.
- Use the squawk box on the device.
- Enter the elevator code—9, 14, 7—and ride the elevator up to the secret ledge-controller room.
- Go to the control panel.
- Put the magnetic card in the slot.
- Enter the ledge-extender code that you learned back in the Schoolroom—6, 9, 8.

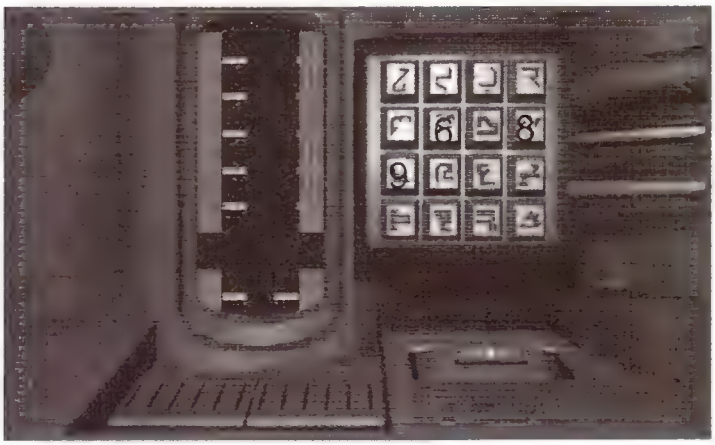


FIGURE 8-25. LEDGE CONTROLLER. ONCE YOU INSERT THE MAGNETIC CARD, YOU CAN ENTER THE LEDGE EXTENSION CODE—6, 9, 8—WHICH I'VE THOUGHTFULLY SUPERIMPOSED OVER THE MYRMICAT SYMBOLS.

- Go back to the elevator, use the squawk box on the acoustic device, and enter the elevator code: 9, 14, 7.
- Ride the elevator back down to the Security Room.
- Go to the door and use the squawk box on the door's acoustic device.
- Enter the Security Room code (7, 2, 15) to open the door.
- Exit to the Level One ledge and look up. The ledges are extended. Freedom!
- Climb up out of the Avian Lair.

Chapter 9
The Octospider Lair

WHEN YOU EMERGE FROM THE AVIAN LAIR, you encounter an excited Richard Wakefield, who explains that you have approximately six hours until a nuclear RAMA-geddon turns you into (as he puts it) "a set of disconnected subatomic particles." One of the three bombs is planted somewhere here in New York. He adds one bit of good news: If you can input the disarming code into one bomb, it shuts down the whole three-bomb network. Then he's off to rejoin Nicole … but he leaves you a companion: Falstaff.

Great. Another tiny guy.

FIGURE 9-1. LITTLE GUY, BIG NEWS. WAKEFIELD'S A TAD NERVOUS ABOUT HEILMANN'S HOLOCAUST SCHEME. HIS LITTLE GIFT WILL PROVE MOST USEFUL.

- Go to the maze entrance.
- Work through the maze to the Octospider Plaza.

Octospider Plaza

- Go directly to the Octospider Lair door.
- Click on the lock for a close-up view.
- Insert the key (called a "costume pendant" in inventory) in the triangular slot.
- Enter the Octospider Lair.

Upper Level: Atrium

Later on in the game, on the lower level of the lair, you'll find the map shown in Figure 9-2 below. But I've placed it here and added call-outs to give you the layout of the lair's upper level. That's just the kind of guy I am.

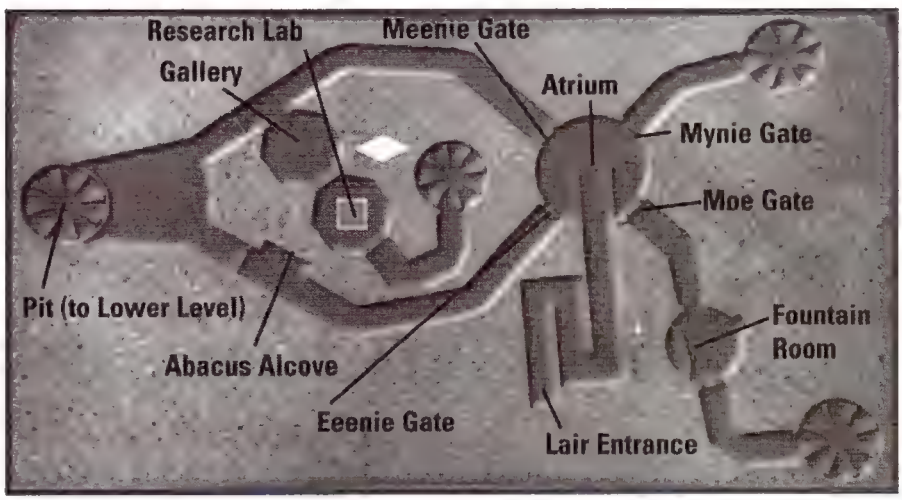
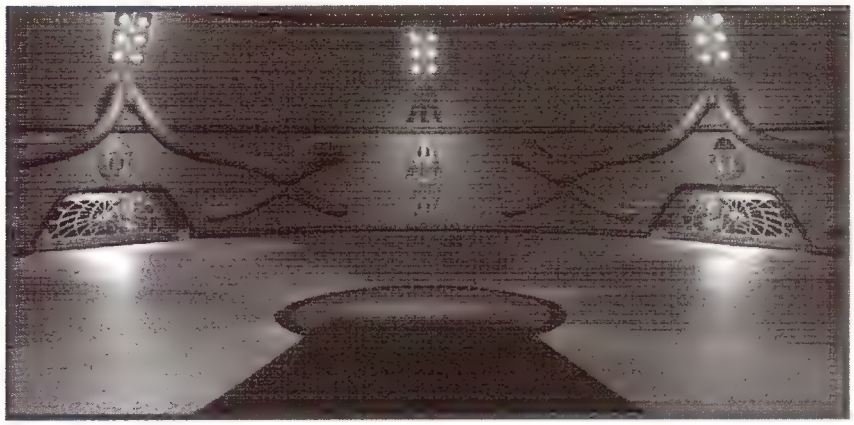


FIGURE 9-2. OCTOSPIDER LAIR: UPPER LEVEL

- Follow the ramp down to the atrium.
- Step forward to the center of the atrium.

You hear a sound, and Puck detects mechanical motion somewhere above. You've stepped on a pressure plate that activates the dome above you.

- Look up at the ceiling dome.



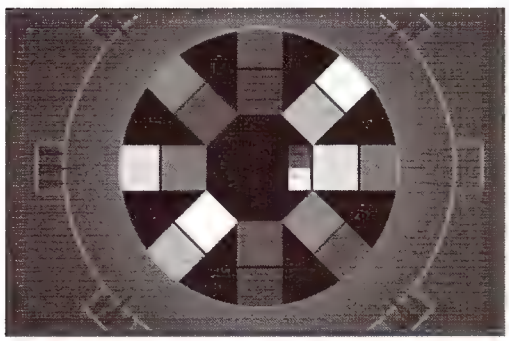


FIGURE 9-3. DOME. WHAT A SPECTACULAR ATRIUM. BUT WHY WOULD OCTOSPIDERS PUT NUMBERS ON THE CEILING?

Notice the eight pairs of color bars laid out in a circle. Remember, octospider numbers are composed of color bars like these. And sure enough, these are two-digit octospider numbers. But only one is important—the number next to the red spikes at the 90-degree position (far right) of the circle. We'll talk more about this in a minute. For now, try this:

- Step off the pressure plate.
- Turn around and step back *onto* the pressure plate.
- Look up at the ceiling dome. The color bar configuration changed!

- Look around the atrium and note the four exit tunnels.

Starting at the ramp and moving clockwise, we'll label them Eenie, Meenie, Mynie, and Moe. (See the map in Figure 9-2.) This is not just whimsy; this is what the astronauts have named the tunnels (as in the first *Rama* sequel by Arthur C. Clarke and Gentry Lee, *Rama II*). Only the Moe gate is open when you first arrive in the atrium.

Important: *Every time you step on the pressure plate, the configuration on the dome changes!*

- Enter Moe, the tunnel just to the left of the ramp.
- Go down the ramp to the room where a pair of octospiders are dancing.

Upper Level: Fountain Room

The dancers notice you and sulkily slither away through the far exit. If you examine their escape door, you find it's locked and requires an orange/green jewel to be opened. (Don't start hunting around for it … there is no such jewel in the game.) But that's not all. If you try to return to the atrium, you discover that the Moe gate is now locked as well, and it requires an orange/blue jewel to be opened.

FIGURE 9-4. OCTOSPIDER DANCE. THESE FELLOWS ARE HYPNOTIC DANCERS, BUT THEY'RE NOT TOO CHUMMY. FORTUNATELY, THEY'RE NOT HOSTILE, EITHER.

- After the octospiders leave, step forward into the room.
- Turn left. Do you see laundry?
- Click on Francesca Sabatini's uniform for a close-up view.
- Click on the uniform again to unfold it and reveal items.

FIGURE 9-5. ISA UNIFORM. UH-OH. SOMEWHERE THERE'S AN AWFULLY COLD REPORTER RUNNING AROUND.

- Take the three data cubes.
- Load each cube into your wrist computer and view all files.

One cube holds a message from Brown to Sabatini ("Subj: Bombs"). It's clear that the two are intimate. It's also clear that they're both aware of Heilmann's bombs, and Brown notes that O'Toole designed the bomb codes and "could probably recite the disarming digits right off the top of his head."

Heilmann's message ("Subj: Keep them away!") echoes this information; he demands that Francesca Sabatini keep General O'Toole away from the "area"—the New York bomb site—because the general knows the codes and is resolutely against taking any preemptive action against RAMA.

The final message is a pair of unedited telecasts by Francesca Sabatini near the bomb at the Iceport. She discusses the bombs and mentions a 20-digit code designed by Michael O'Toole. The first take is cut off sharply by Otto Heilmann, and the second tape ends with further evidence of her romantic involvement with Dr. Brown.

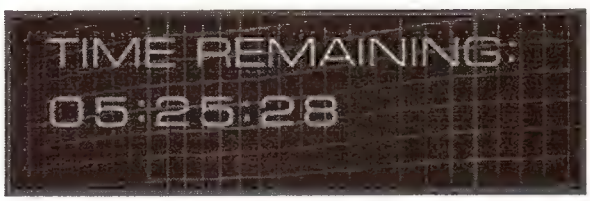
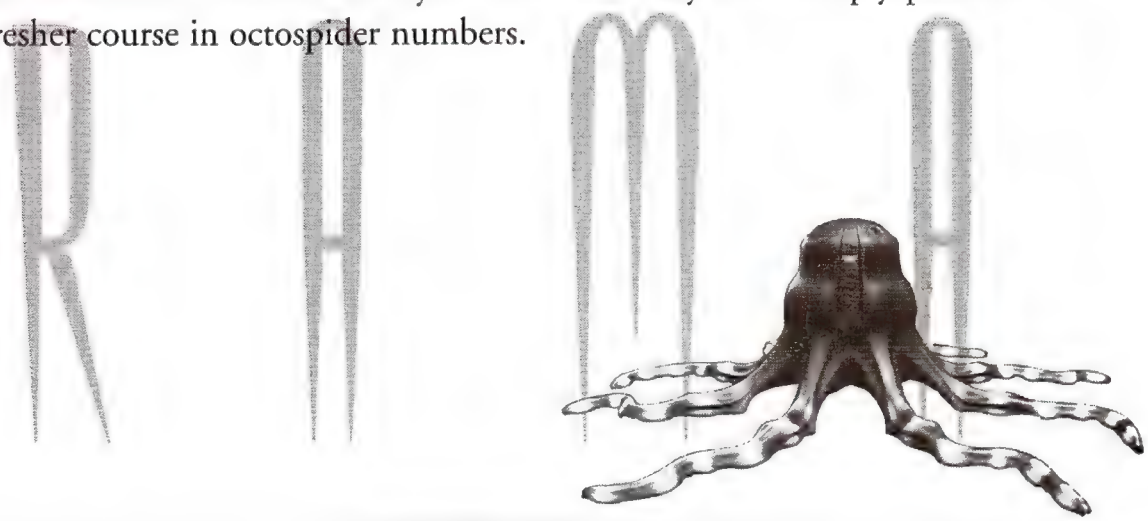


FIGURE 9-6. FRAN AND DAVE. GOD, WHAT A CUTE COUPLE THEY MAKE. LOOKS LIKE THE CONSPIRACY TO BLOW RAMA OUT OF THE SKY INCLUDES BROWN AND SABATINI AS WELL AS HEILMANN AND HIS SECURITY TEAM. AND, AS YOUR WRIST COMPUTER SHOWS, TIME IS RUNNING OUT.

- Back away from the uniform.
- Turn twice to see the keyboards in front of the fountains.
- Experiment with the various keys. The colored keyboard simply provides a refresher course in octospider numbers.



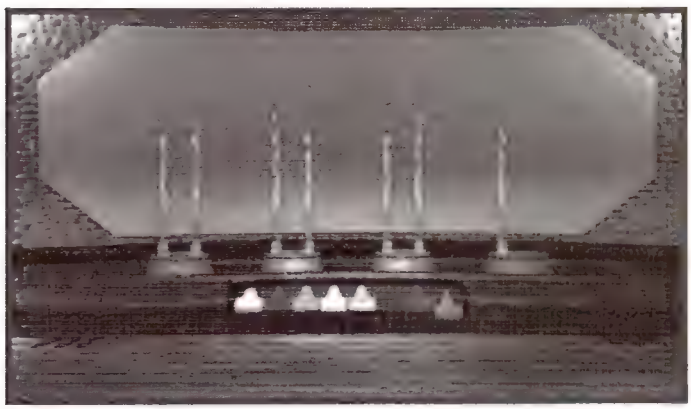


FIGURE 9-7. EIGHT-DIGIT FOUNTAIN. GOSH, WHAT A PLEASANT WAY TO REVIEW YOUR OCTOSPIDER NUMBERS. THAT'S A VIOLET 7 YOU'VE GOT GOING THERE.

The all-white keyboard plays octospider "music" … which, since octospiders are deaf, is entirely visual, consisting of colors and dancing waters. Note that one of the white keys triggers a noise behind you.

- Press the second key from the right on the white keyboard.
- Turn twice and see that a secret niche is now open.
- Approach the niche.
- Insert the indigo/yellow jewel in the lockplate. (This is the jewel you found in the alley outside the Artifact Museum up in the Octospider Plaza.) A door opens to reveal a jewel rack.
- Take all of the jewels from the rack.

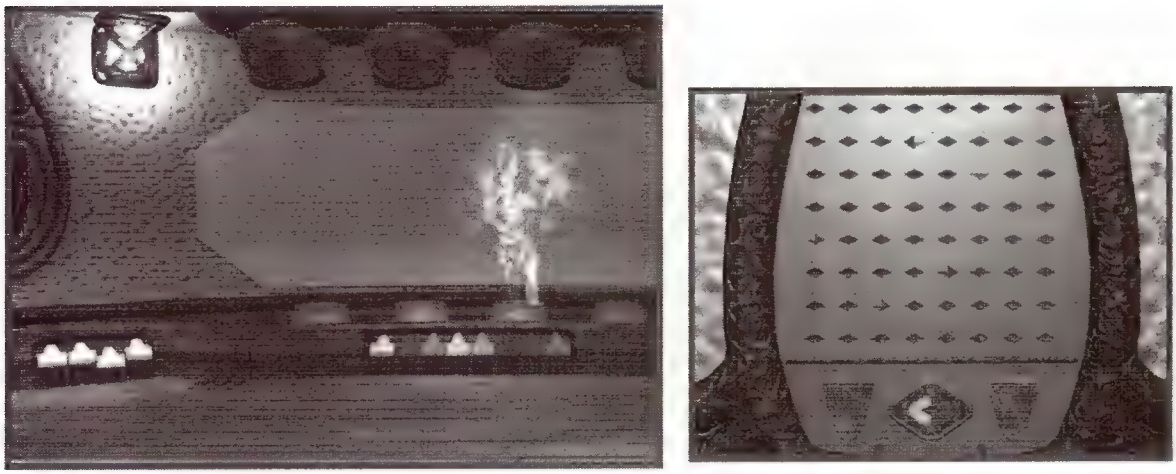


FIGURE 9-8. JEWEL KEY. PRESS THE CORRECT WHITE KEY TO REVEAL A JEWEL BIN. THEN UNLOCK THE BIN WITH THE INDIGO/YELLOW JEWEL AND STUFF YOUR POCKETS, MAN.

This rack holds five jewels. Not all of them are important in the game. But what the hell. Take them all. Plunder! Make your species proud, man.

- Back away from the jewel rack and turn right.
- Take *one* step toward the door the octospiders used to exit the room. (Don't go to the close-up view.)
- Move your cursor over the lower left part of the door. (See Figure 9-9.)
- Click on that spot. You'll see a jewel on the floor.

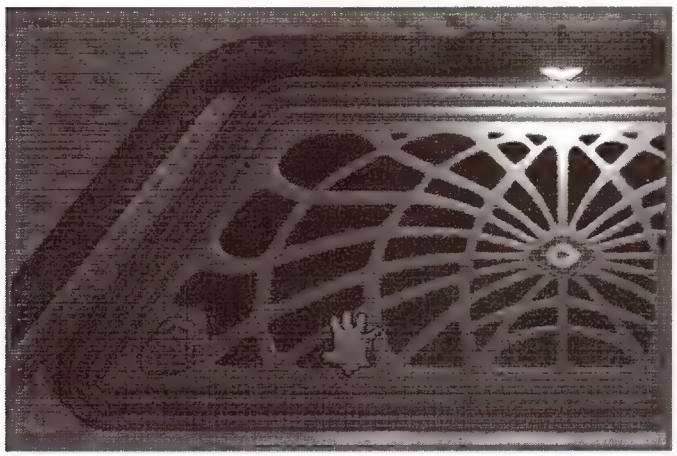


FIGURE 9-9. LET ME GIVE YOU A HAND. PUT YOUR CURSOR ON THE SPOT SHOWN HERE AND CLICK TO GET A VIEW OF THE DROPPED JEWEL.

If you try to grab the jewel, Puck will tell you it's beyond your reach. (Shut up, Puck.) But your ace in the hole is Falstaff. You knew the little fellow would come in handy eventually.

- Click Falstaff on the jewel.
- Watch him nab the blue/orange jewel for you.

FIGURE 9-10. JEWEL HEIST. WAY TO GO, FALSTAFF. THAT LITTLE GUY'S WORTH HIS WEIGHT IN GOLD.

The blue/orange jewel appears in your inventory. What a dude! Now you can get out of the Fountain Room before the waters start dancing to the tune of *It's a Small World.*

- Go back up to the Moe gate.
- Click on the lockplate for a close-up.
- Use the blue/orange jewel in the lockplate slot. The gate opens.
- Go back into the atrium.

Upper Level: Atrium

- Step forward to the pressure plate.
- Look up at the dome.

Note the octospider number in the three o'clock position—the two-digit number between the "language header" (four small color bars that mark the beginning of a number) and the red spike icons at the far right of the circle. We'll call this the "spike control number"; you'll find out why soon.

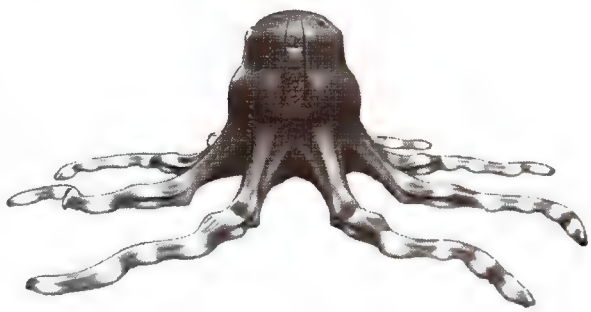
Translate that two-digit number from octospider Base Eight to human Base Ten. Read the two digits from left to right.

FIGURE 9-11. SPIKE CONTROL. THE ONLY NUMBER YOU NEED FROM THE DOME IS THIS ONE, NEXT TO THE RED SPIKES. READ THE TWO DIGITS FROM LEFT TO RIGHT.

It is important to calculate this number correctly. It provides access to the lower level of the lair. Remember also that the number changes every time you step onto the pressure plate.

For your convenience:

White	=	0
Red	=	1
Orange	=	2
Yellow	=	3
Green	=	4
Blue	=	5
Indigo	=	6
Violet	=	7



- Turn to the Meenie gate (second door clockwise from the ramp).
- Approach the Meenie gate.
- Use the indigo/green jewel—the one you found on the floor in the Octospider Museum on the third tier of Bangkok—to unlock the gate.
- Follow the corridor to the closed gate, then turn left and enter the Gallery.

Gallery

Take a look around. None of the objects in the gallery are indispensible to *RAMA*'s solution path, but they do further the plot. In particular, the discovery of Takagishi is kind of a shocker, as is the taxidermy photo display.

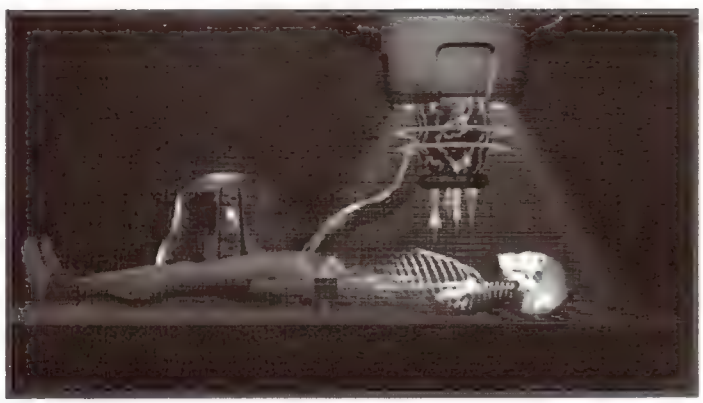


FIGURE 9-12. STUFFED TAKAGISHI. IN THE NOVEL *RAMA II*, TAKAGISHI DIES OF A HEART ATTACK WELL BEFORE THE TAXIDERMY—THE OCTOSPIDERS ARE NOT VIOLENT. BOY, I HOPE THE SAME HAPPENED HERE.

FIGURE 9-13. MYRMIPIX. AT LAST, REAL MYRMICATS. KIND OF UGLY, IN AN AMUSING SORT OF WAY.

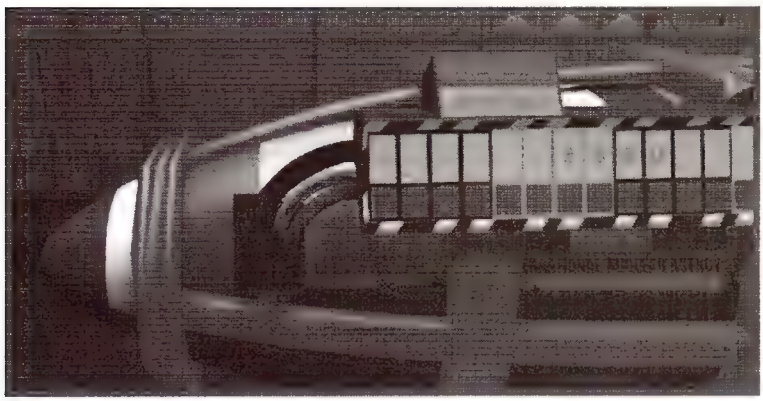


FIGURE 9-14. CODE FRAGMENT. COMBINE THIS PHOTO WITH INFORMATION FROM OTHER ITEMS IN THE LAIR, AND YOU CAN ACTUALLY FIGURE OUT THE BOMB CODE BEFORE YOU FIND THE BOMB ITSELF.

Before you leave the gallery, notice the locked door on the far side of the room. If you take a closer look, you see that no jewel color is designated on the lockplate.

- Exit the gallery and turn left to the locked door.
- Click on the lockplate for a close-up.
- Use the violet/blue jewel (from the jewel rack in the Fountain Room) on the lockplate to unlock the door.
- Go through the gate into the big room.

Upper Level: Spiked Pit Area

- When you enter the room, turn right.
- Approach the spiked cylindrical pit.

This pit is your passage to the lower level of the Octospider Lair. But when you approach it, the spikes retract. If you look down the pit, you see only the tips of spikes to halt a slippery slide to oblivion. Better get those spikes back out.

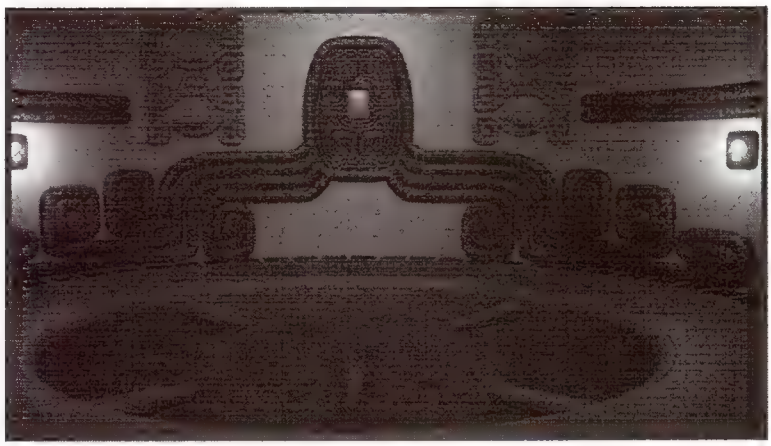
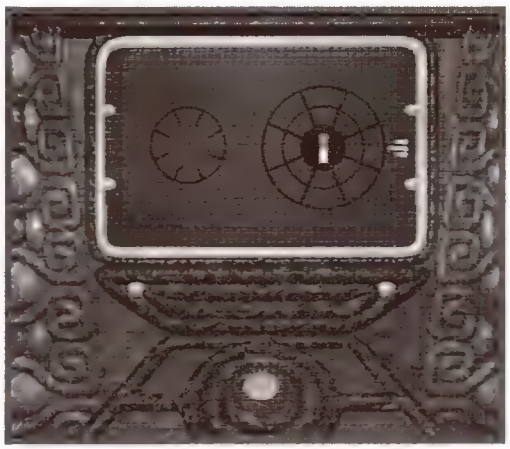


FIGURE 9-15. PIT TEASER. SURE, IT LOOKS GOOD WHEN YOU FIRST STEP UP. BUT SUDDENLY THOSE SPIKES RETRACT, LEAVING NO WAY TO DESCEND.

- Turn around and go through the right-hand doorway. You come to a closed gate with a green/red lockplate. This is actually the back gate to the Eenie area (see map in Figure 9-2).
- Unlock the gate with the green/red jewel. (You actually have two—one from the jewel rack in the Fountain Room, the other from the maze-controller alley in the Human Plaza.)
- Go through the gate.
- Turn left and approach the control panel in the alcove.

This panel controls the spikes in the pit. Here's how it works:

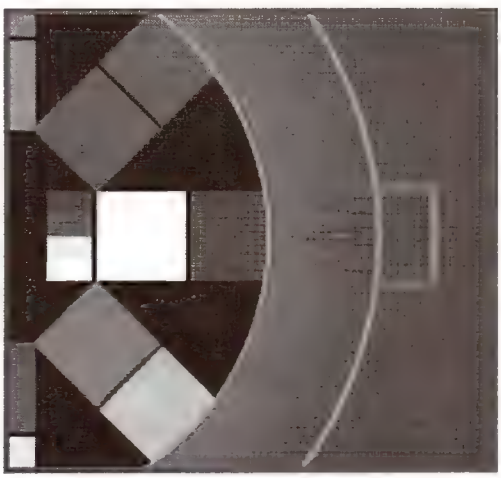
FIGURE 9-16. CONTROL PANEL



The schematic on the right side of the panel refers to the color wheel on the dome in the atrium area. Note that the spikes in the schematic point to the octospider number in the three o'clock position on the wheel—the "spike control number." The schematic on the left side of the panel represents the cylinder pit and depicts whether the spikes are currently extended or retracted.

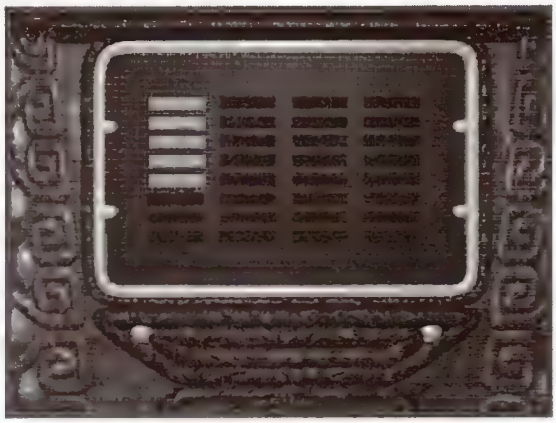
When you first approach the panel, the spikes are extended into the pit in the schematic. Don't be confused by this. The spikes move to the *opposite of their currently set position* whenever you approach the pit. So you want to set the spikes to the retracted position; this way, they will move to the opposite position—extended—when you approach the pit.

FIGURE 9-17.
SPIKE CONTROL NUMBER



Did you note the octospider number in the three o'clock position on the atrium ceiling? If not, you can go back and check now. Remember that the octospider number system is Base Eight, so if the two digits of the spike control number are "10" (one-zero), the number equals 8 in Base Ten. (For more on this, refer to the chapter 5 section on the octospider learning machines in the third tier of Bangkok.)

FIGURE 9-18. ABACUS



Once you've determined the spike control number from the atrium ceiling, click on the handle below the control panel to bring up the abacus. Then simply light up the same number of red bars as the control number, and click the handle again.

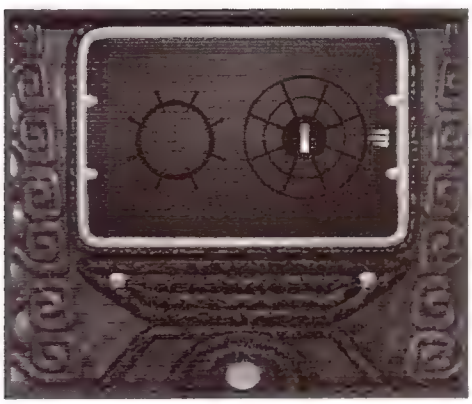


FIGURE 9-19. READY TO CLIMB

If you entered the correct spike control number, the schematic on the left shows the spikes retracted. Now when you walk up to the pit, they will extend.

- Go back to the pit. Note that the spikes are now retracted, but then they will extend when you approach.
- Look down the pit.
- Climb down the pit.

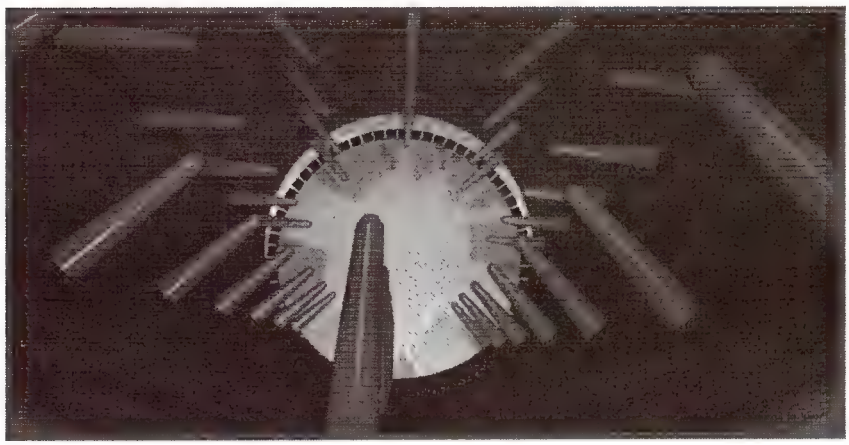


FIGURE 9-20. SPIKY DESCENT. STILL LOOKS KIND OF PRECARIOUS. BUT HEY, IF BIG BLOBBY OCTOSPIDERS CAN DO IT, SO CAN YOU.

Lower Level: Pit Area

- Go through the doorway into another dome-topped atrium. Hear that thump? Yep. You stepped on another pressure plate.

- Look up at the ceiling.

Same dome as in the atrium on upper level. And by stepping on this pressure plate, you've reset the spike/abacus mechanism; if you return to the pit, you'll find the spikes are reversed again and now retract when you approach. To ascend, you must reset the abacus machine. But you know how to now, so it will be quick and easy.

- Examine the symbolic map on the wall. It's a map of the upper level of the lair. (See Figure 9-2.)

Notice that there's a button in one room. That's the room behind the Gallery upstairs, the room whose locked door had no color designation on the lockplate.

- Push the button on the map. Note the flashing orange/red jewel icon.

FIGURE 9-21. PUSH THAT BUTTON. LIGHT THE JEWEL. NEED I SAY MORE? THIS PART OF THE MAP SHOWS THE GALLERY, THE LOCKED ROOM BEHIND IT, AND ANOTHER SPIKED PIT (WHICH SHALL REMAIN INACCESSIBLE IN THIS GAME).

- Back up from the map and turn right.
- Before you go forward, look up at the ceiling dome again and double-check the two-digit octospider number in the three o'clock position. (Again, it's the two color bars by the red spike icons at the far right.)
- Go forward across the pit area to the control panel.

You should know how to work the abacus/spike control panel by now, but I'll walk you through the process again:

- Translate the spike control number from the ceiling into human Base Ten.
- Click on the handle below the control panel to bring up the abacus counter.
- Light up the number of red bars that corresponds to the spike control number.
- Click on the handle again to reveal the panel display.
- Check the icon on the left side of the panel to make sure the spikes are *retracted* (not *extended*).
- Go to the pit. The spikes extend when you arrive.
- Climb up the pit.

Upper Level: Research Lab

Now let's see what happened when we pressed the button on the map downstairs (or perhaps I should say "downspikes," since there are no stairs).

- Go back to the Gallery.
- Approach the locked door on the far side of the room.

Aha! The formerly colorless lock is now orange/red ... which, of course, is the same color as the jewel icon that flashed when we pushed the button on the map. Pushing that button activated this lock.

FIGURE 9-22. TECHNICOLOR LOCK. PUSHING THE BUTTON ON THE LOWER-LEVEL MAP GAVE THIS LOCK A MORE COLORFUL APPEARANCE—ORANGE AND RED.

- Unlock the door with the orange/red jewel (which you found in the jewel rack in the Fountain Room). The door opens to reveal an octospider teacher surrounded by a number of objects.
- Approach the octospider.

FIGURE 9-23. DR. TENTACLE. HIS DEMONSTRATION WAS CLEAR. HE WANTS YOU TO COUNT. CAN YOU DO "SEVEN" IN OCTOSPIDER?

Your approach triggers a long, two-part animated sequence. In the first part, the octospider says hello in colors. He touches the octospider symbol for the number 4—a green bar—on a number pedestal, then taps four times on a device, producing four balls on the translucent screen to the right. The teacher touches the lower screen and the human number 4 appears. He "speaks" (in color) the octospider symbol for the number 4; the green bar circles around his head. The green bar also drifts across the translucent screen. Finally, the creature munches on an octospider crunchie from his bowl.

Now it's your turn. The octospider teacher taps seven times on his device to produce seven balls on the screen. He touches the screen to make the human number 7 appear. Then he waits for your response. Come on, man. It's up to you.

- Turn the number pedestal until you see the single pink bar, the octospider symbol for the number 7.
- Click on the pink bar.
- The octospider rejoices—goes nuts, really—and offers you an object.
- Take the object. It's O'Toole's catechism card!
- Examine the card in close-up view, then turn it over.

More code! The back of the card suggests that the code sequence is five numbers. The first number listed is 15, the last is 33. Again, we'll get into a full discussion of the bomb code in chapter 10.

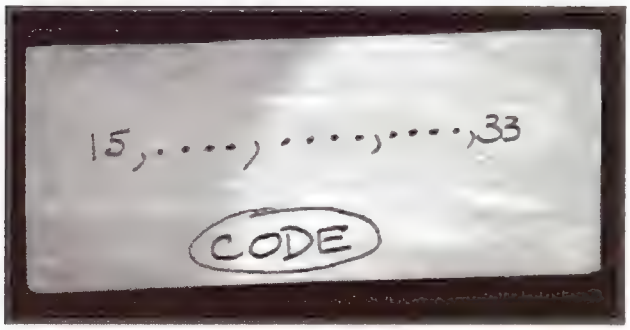


FIGURE 9-24. NUNS AND RULERS. IF YOU WENT TO A CATHOLIC SCHOOL, THIS CATECHISM CARD IS BOUND TO BRING BACK PAINFUL MEMORIES. TURN IT OVER, THOUGH.

- *Important!* Take the octospider crunchie from the bowl.
- *Important!* Take the "unknown item" from the top of the number pedestal.
- Examine the unknown item in close-up view.

Awesome! It's a complete chart of all the numbers in O'Toole's favorite quadratic prime sequence. This will be extremely useful later, when the bomb is ticking away and time is tight. For now, pop the chart into inventory and move on.

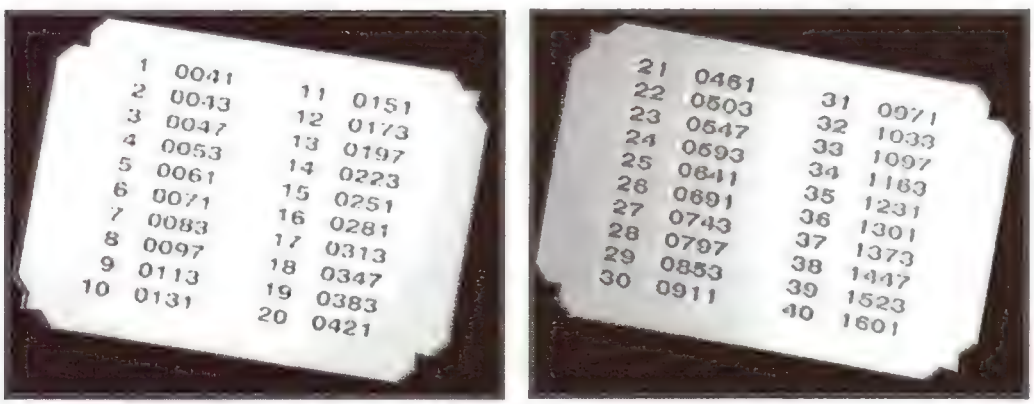


FIGURE 9-25. PRIMED FOR ACTION. O'TOOLE'S CHART LISTS THE ENTIRE 40-NUMBER QUADRATIC PRIME SEQUENCE. EACH NUMBER IS CARRIED OUT TO FOUR DIGITS AND THE SEQUENCE IS NUMBERED 1 THROUGH 40.

- Go back through the gallery and return to the pit.
- Climb down to the lower level.

Lower Level: Subway

- Go forward to the subway station. You see a big subway car and a little subway car.
- Examine the big subway car.

FIGURE 9-26. BIG CAR. NO POWER, SO I GUESS THAT MEANS BIG PEOPLE WALK.

Inside, you find Francesca Sabatini's scarf knotted to a grip handle. You also learn that the car is powerless. Could this be a dead end? *No way!*

- Go to the small subway across the room.
- Put the octospider crunchie in the small subway car.
- Put Falstaff in the small car.

Falstaff boards the subway, and the game shifts to his point-of-view. (Ostensibly, you're seeing the action through his eyes via your wrist computer.)

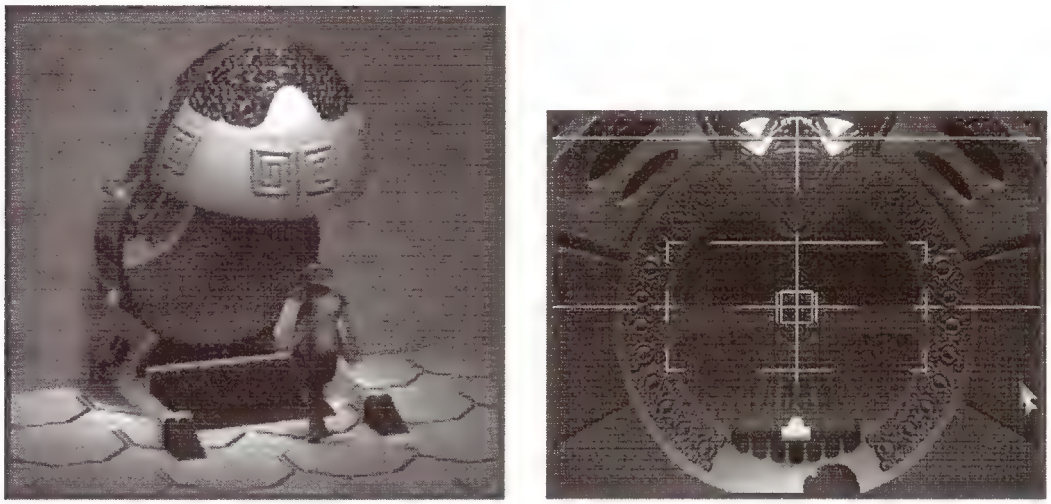


FIGURE 9-27. LITTLE CAR. LOAD THAT TINY SUBWAY CAR WITH A CRUNCHIE AND FALSTAFF. IT'S ALL UP TO THE LITTLE GUY NOW.

- Have Falstaff pick up the octospider crunchie.
- Push the white button to activate the subway.

Octomorph Nursery

At the end of the line, Falstaff finds himself in a nursery where three baby octospiders (called "octomorphs") are eating crunchies from bowls.

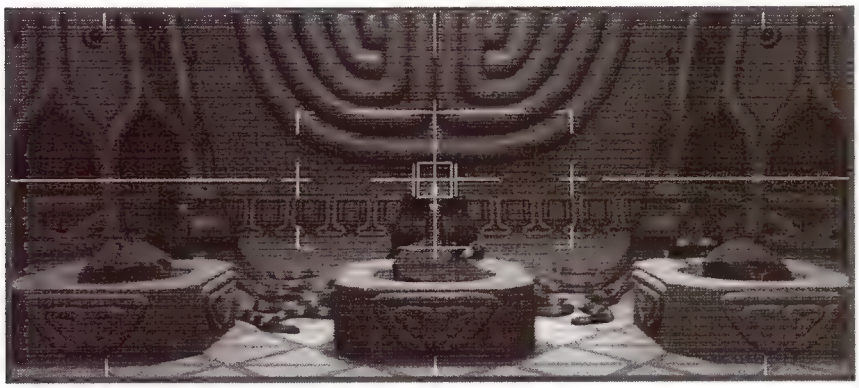


FIGURE 9-28. OCTO-NURSERY. AW, AREN'T THEY CUTE? OF COURSE, IF YOU FOUND ONE IN YOUR BED, YOU'D PROBABLY SLAM IT AGAINST THE WALL AND CALL PEST CONTROL.

- Step forward into the nursery.

Watch as a very big adult tentacle takes the crunchie from the octomorph at the far right. That octomorph angrily stalks offscreen to the right.

- Turn right to see where the octomorph went.

There he is, throwing a tantrum. What's that behind him? Looks like O'Toole's ID card! But if you try to grab it, the snot-nosed little brat won't let you past. How can you lure him away? Surely you have an idea.

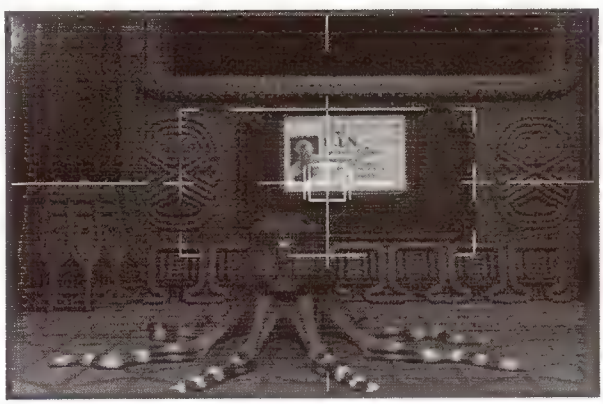


FIGURE 9-29. CARD GUARD. THIS LITTLE BASTARD IS MAD BECAUSE MOM TOOK HIS CRUNCHIE, SO HE WON'T LET YOU NEAR O'TOOLE'S ID CARD.

- Turn left to the food bowls.
- Take the crunchie from your inventory and put it in the empty bowl at right.
- The octomorph returns and happily eats.
- Turn right and grab O'Toole's ID card. (Just pop it in inventory for now; we'll examine it later.)
- Turn left twice. Yikes!
- After the adult octospider moves away from the window, grab the hand laser hanging on the wall.

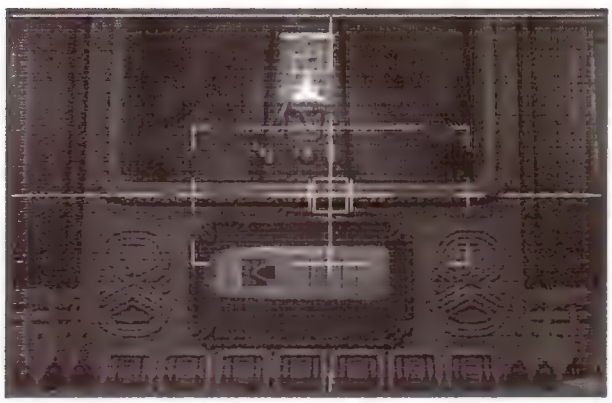
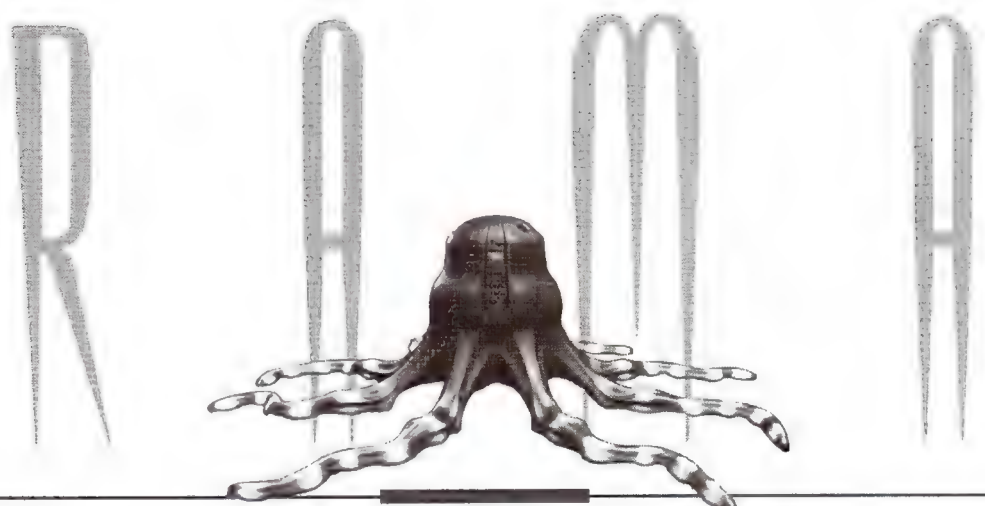
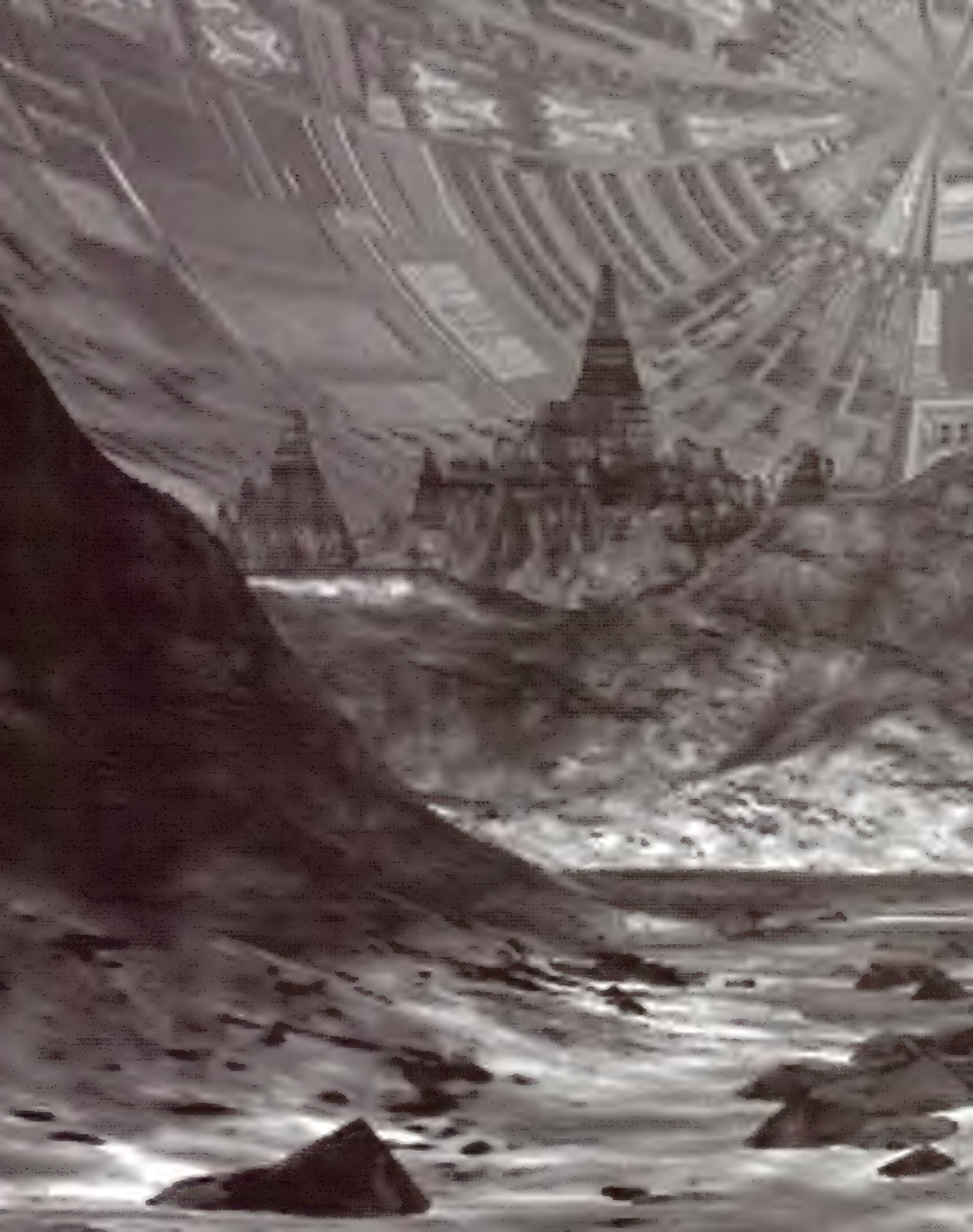


FIGURE 9-30. HAND LASER. IT'S DARNED IRRESPONSIBLE TO LEAVE WEAPONS IN THE NURSERY. SO THE ONLY MORALLY CORRECT THING TO DO IS STEAL IT.

- Go back into the subway car.
- Press the white button to have Falstaff ride back to you.
- When the subway arrives, move forward to exit.

- After Falstaff climbs out of the subway car, the game's point-of-view returns to your character.
- Exit the subway station into the domed room.
- Look up at the ceiling dome and note the octospider number in the three o'clock position.
- Go to the control panel and enter the correct number.
- Go to the pit and climb up.
- Exit the Octospider Lair.
- From the Octospider Plaza, enter the maze and go to the Human Plaza.





Chapter 10
The Human Lair

CONGRATULATIONS! YOU'VE REACHED THE ENDGAME. Now let's find that nuclear bomb before ISA paranoia destroys one of the most magnificent (and clearly benign) creations in the universe.

- Go to the entrance of the Human Lair.
- Click on the lockplate to the left of the door.

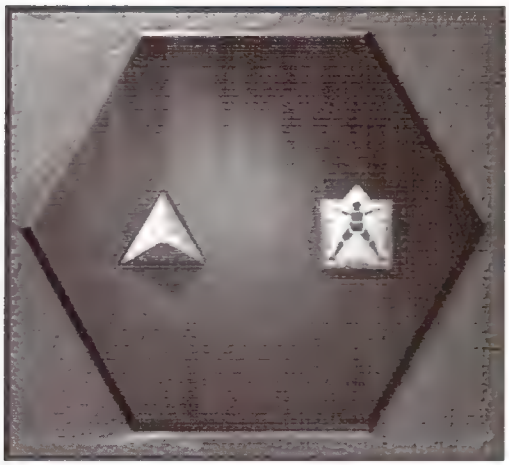


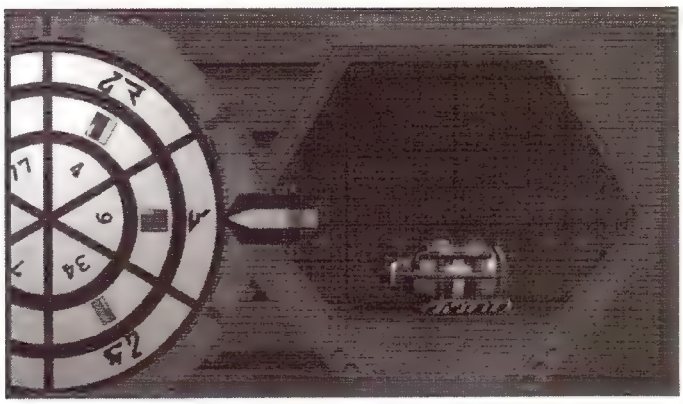
FIGURE 10-1. KEYS TO HUMAN LAIR. TO UNLOCK THE HUMAN LAIR, YOU NEED TWO KEYS—THE HUMAN ICON FROM BANGKOK AND THE PYRAMIDAL "POOL PENDANT" YOU FOUND IN THE AVIAN LAIR.

- Put the Human Lair key (called a "pool pendant" in your inventory) into the triangular slot.
- Walk down the ramp to the room.

Wheel Room

A big number wheel sits on the wall in front of you. The wheel is divided into three concentric circles, with six human numbers on the inside circle, six octospider numbers in the middle circle, and six myrmicat numbers in the outside circle. There's also a pointer at the far right. Only one number value is common to all three sets of numbers. Can you find it?

- Line up the three values that equal the human number 9. (See Figure 10-2.) The door opens.



Since this book isn't in color, I'll tell you that the octospider numeral 9 is two red bars, or "one-one."

FIGURE 10-2. NINE IN A ROW. LINE UP THE 9'S TO OPEN THE DOOR. THE OCTOSPIDER 9 IS TWO RED BARS, OR "ONE-ONE."

- Enter the bomb room.

Bomb Room

The moment you step into this room, a nasty-looking and extremely *stupid* spider biot leaps in front of the bomb you need to disarm. You can move right or left without danger. But if you step closer to the spider biot ... well, let's just say Vlad the Impaler would have liked spider biots.

Say, is that a mirror on the wall?

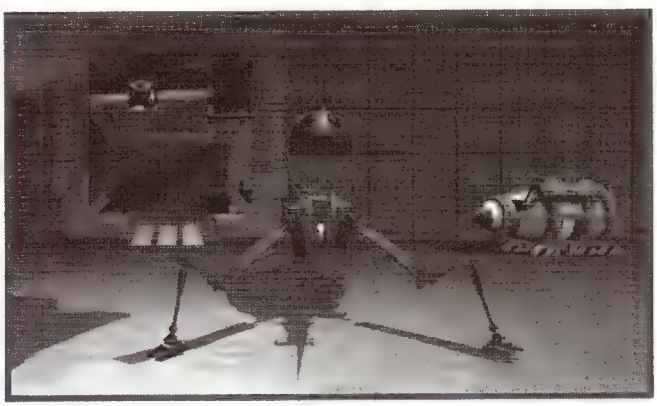


FIGURE 10-3. MISGUIDED VIGILANCE. *GET OUT OF THE WAY, YOU IDIOT!* HEY, LOOK ... FROM HERE, YOU CAN SEE THE CRANE'S CONTROL PANEL IN THE MIRROR.

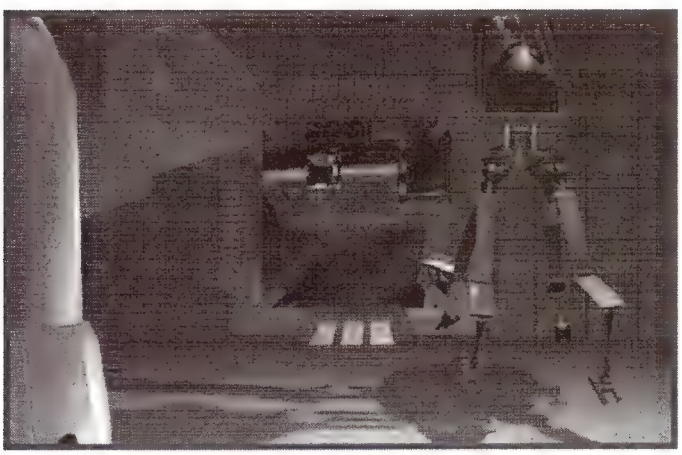
- From the entry location, turn left.

A crane biot! Cool! Remember how you activated the crane to hoist the spider back on the third tier of London? You fired a laser blast at the crane's control panel. Don't you have a hand laser? Let's do it again!

Small problem, though. This crane's control panel is on its far side … and the spider won't let us cross the room. But wait. See the crane's reflection in the mirror? Yes, that's its control panel. And a laser beam will reflect quite nicely off a mirror.

- Click the hand laser on the mirror reflection of the crane biot's control panel. The crane picks up the spider biot, rendering it harmless.

FIGURE 10-4. DANGLING SPIDER. ZAP THE MIRROR REFLECTION OF THE CRANE BIOT'S CONTROL PANEL. THEN WATCH YOUR BIG BUDDY HOIST THE SPIDER.



- Go right, forward, left, and forward to approach the bomb.
- Click on the bomb for a close-up view.

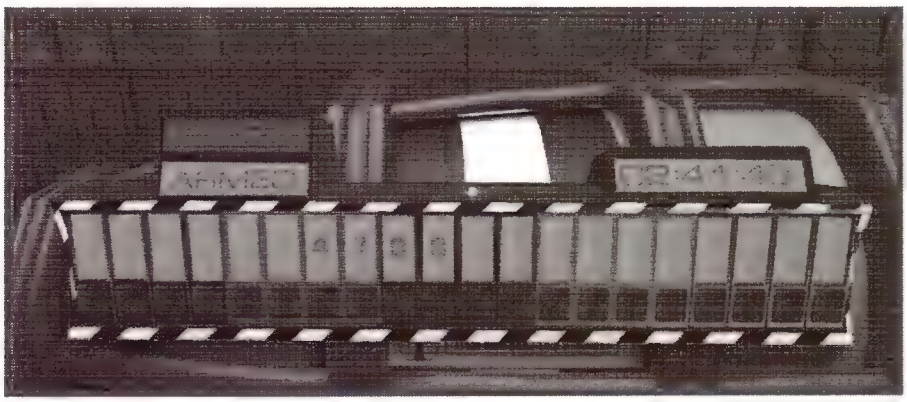


FIGURE 10-5. START PUNCHING. AS YOU CAN SEE, SOMEBODY—O'TOOLE, NO DOUBT—TOOK A SHOT AT ENTERING THE CODE. THOSE FOUR DIGITS WILL HELP YOU DETERMINE THE REST OF THE CODE.

- Input the correct 16 digits of the bomb disarming code.

Ha! That last instruction was a lame joke. Time for a thorough explanation of the bomb disarming code.

How to Disarm the Bomb

The bomb disarming code is a 20-digit number—actually, five sets of four-digit numbers. Each one of these four-digit numbers comes from the quadratic prime sequence that General O'Toole finds so fascinating. Throughout the game, you've collected various items belonging to O'Toole that indicate bomb code numbers—15 and 33 from his catechism card, 3 and 29 from his ID card, and either 19, 20, 21, or 22 from his anniversary photo. It is very important to understand that *these are not the bomb code numbers themselves* and should not be input on the bomb keyboard.

Instead, the numbers 15, 33, 3, 29, and the photo number (19 or 20 or 21 or 22) indicate a *position in the quadratic prime sequence*—that is, the 15th position, the 33rd position, and so on. The prime numbers found in those positions are the actual code numbers. This sequence of 40 prime numbers and their positions in the sequence are conveniently listed on the small chart you found in the octospider Research Lab back in chapter 9. I'll reproduce the chart again below.

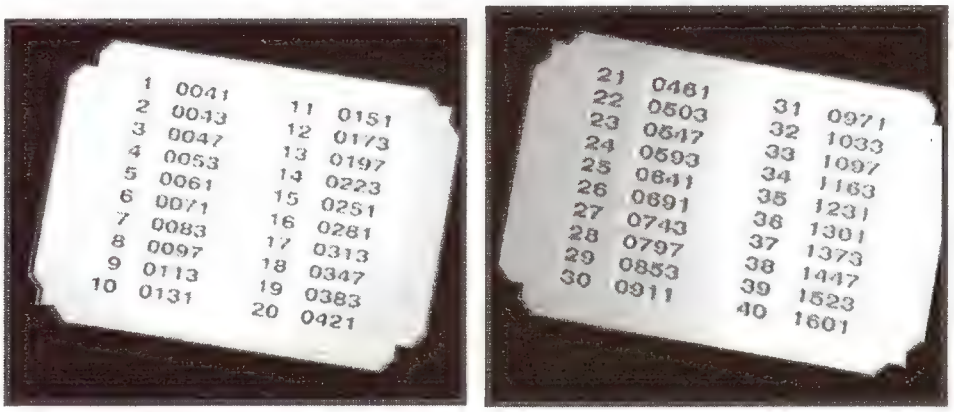


FIGURE 10-6. O'TOOLE'S CHART. YOU COULD FIGURE OUT THE QUADRATIC PRIME SEQUENCE ON YOUR OWN ... BUT WHY? THIS TWO-SIDED CHART HAS ALL THE ANSWERS.

Want to run the numbers? Try $(n^2 - n) + 41$.

OK, let's crack the code. First, look at O'Toole's catechism card, which you also obtained in the octospider Research Lab from the octospider teacher. The back of the card clearly indicates that the five number series begins with 15 and ends with 33. But again, these two values refer to the prime numbers in the 15th and 33rd positions in the quadratic prime sequence.

Note on the chart that if a number has less than four digits, then zeroes are added to the front of the number to make it a four-digit number—for example, 41 becomes 0041, and 273 becomes 0273.

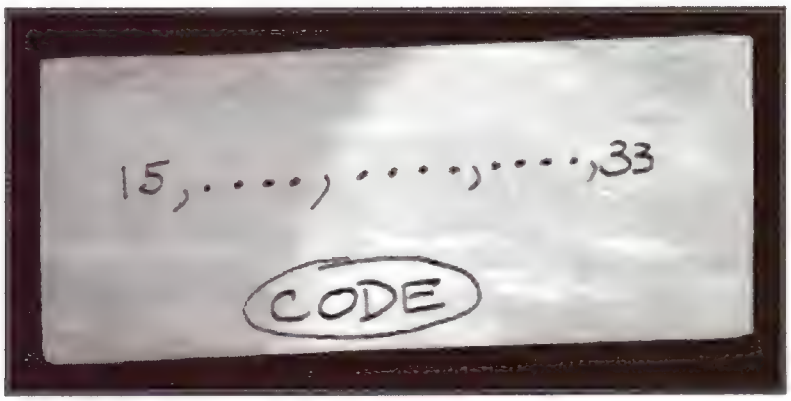


FIGURE 10-7. O'TOOLE'S CATECHISM CARD. THIS CARD FROM THE OCTOSPIDER LAIR (OBTAINED IN THE RESEARCH LAB FROM THE OCTO-TEACHER—SEE CHAPTER 9) PROVIDES A CLUE TO THE FIRST AND LAST NUMBERS IN THE CODE SEQUENCE.

If you check the chart, you find that the 15th number in the sequence is 0251, and the 33rd number in the sequence is 1097. So you know the first four digits and the last four digits of the bomb code.

- Enter 0251 as the first four digits on the bomb's control panel.
- Enter 1097 as the last four digits on the bomb's control panel.

Placing the middle numbers is slightly more complicated because the three numbers can rotate positions from game to game. Plus, one of the numbers—the one on the back of O'Toole's anniversary photo—actually *changes* from game to game. Fortunately, the game gives you the 7th, 8th, 9th, and 10th digits of the code sequence. Thus, it's possible to figure out the numbers in the middle of the code.

Here's how:

First, look at the two circled numbers on O'Toole's ID card—3 and 29. Again, these are not the code numbers themselves, but instead refer to the numbers in the 3rd and 29th positions in the quadratic prime sequence. The same is true of the number circled on the back of O'Toole's anniversary photo. Whenever you start a new game, *RAMA* randomly picks one of four numbers—19, 20, 21, or 22—to place on the photo.

FIGURE 10-8. O'TOOLE'S ID AND PHOTO. THE ID CARD FROM THE OCTOSPIDER LAIR (OBTAINED IN THE OCTOMORPH NURSERY—SEE CHAPTER 9) PROVIDES A CLUE TO TWO OF THE THREE MIDDLE NUMBERS IN THE FIVE-NUMBER CODE SEQUENCE. THE ANNIVERSARY PHOTO (OBTAINED IN THE MUSEUM OFF THE OCTOSPIDER PLAZA—SEE CHAPTER 7) PROVIDES THE CLUE TO THE OTHER MIDDLE NUMBER.

Important: : After you use the chart to determine the three four-digit numbers in the middle of the bomb code, *look at the four digits already input into the bomb!* With these in place, you can easily figure out the order of the middle three numbers.

If you check the chart, you find that the 3rd prime number in the sequence is 0047, and the 29th prime number in the sequence is 0853. In order, the 19th through 22nd prime numbers in the sequence are 0383, 0421, 0461, and 0503.

So the code clue sequence could be any of the following:

15, 3, 29, (19 or 20 or 21 or 22), 33
15, 29, 3, (19 or 20 or 21 or 22), 33
15, (19 or 20 or 21 or 22), 29, 3, 33
15, (19 or 20 or 21 or 22), 3, 29, 33
15, 3, (19 or 20 or 21 or 22), 29, 33
15, 29, (19 or 20 or 21 or 22), 3, 33

In summary, here's what we know about the bomb code:

1. The numbers on O'Toole's items are not the code itself, but specify positions in the quadratic prime sequence. The numbers in those positions are the actual code numbers.

2. The first number is always 15 (0251).

3. The last number is always 33 (1097).

4. The middle three numbers always include 3 (0047) and 29 (0853).

5. The remaining number could be 19 (0383), 20 (0421), 21 (0461), or 22 (0503).

6. The four digits already entered determine the order of the middle three numbers.

OK, let's try it again.

- Input the rest of the digits of the bomb disarming code.
- Push the Input button.

FIGURE 10-9. TIME TO INPUT. HERE'S ONE OF SEVERAL POSSIBLE FINAL CODES. NOW PUSH THE INPUT BUTTON.

- After Nicole appears on vidmail, go back upstairs and exit the Human Lair.
- Enjoy the splendor of the grand finale. Way to go, Ace!

Part Two

A Conversation with Arthur C. Clarke and Gentry Lee

ARTHUR C. CLARKE IS 78 YEARS OLD and doesn't like airplanes. So count him out of any manned mission to Mars. "But if a flying saucer landed tomorrow and said I'll take you to Alpha Centauri," he says, "now that's another story." And there you have Arthur C. Clarke in a nutshell. Bound by Earth and physical limitations, by time and mortality, as we all are. But unbound by imagination … to the delight of countless legions of fans. With books such as *2001: A Space Odyssey* and *Rendezvous with Rama* to his credit, Clarke is universally acknowledged as one of the true giants of 20th century imagination—a science fiction writer whose imaginings reverberate outside the realm of fiction.

Gentry Lee is a giant in his own right. Lee designed *RAMA* for Sierra, and science fiction fans recognize him as co-author with Clarke of the three spectacular sequels to *Rendezvous with Rama.* But Lee is also a man of science—indeed, of the highest levels of science. He has been chief engineer on Project Galileo, director of science analysis and mission planning for NASA's Viking mission to Mars, and partner with Carl Sagan in the creation of the landmark television series *Cosmos.*

The following conversation with (and between) these two remarkable gentlemen took place in Clarke's home in Sri Lanka during November of 1995, about a year before the release of the computer game. *RAMA*'s executive producer Kate Kloos and a Sierra crew videotaped several hours of material, then distilled about 20 minutes worth for inclusion on the *RAMA* CD-ROMs. What follows, however, is a full transcript of two complete interview sessions. In the first session, Lee himself interviews Clarke ... and the scope of the dialogue is quite expansive. In the second, Kloos conducts the interview with both Lee and Clarke on their collaborations and working relationship.

One purpose of these interviews was to highlight Clarke's legendary vision of the future. Even at 78, those visionary qualities shine through. Arthur C. Clarke sees forward just a bit more clearly than you or I. It was Clarke, after all, who first proposed the concept of communications satellites in geostationary orbits—a speculation soon realized. At one point in the interview, Lee asks him, "What were your first thoughts when you learned that human beings were going to the moon?" Clarke's answer skips back past Apollo and Gemini all the way to John F. Kennedy's 1962 call for a man on the moon by the end of the decade. That's when Arthur C. Clarke clearly foresaw that one giant leap for mankind. "I knew it was inevitable," he says.

As you launch into this interview and marvel at the future Clarke weaves together from shreds of contemporary science, keep in mind one of his most-quoted pronouncements: "Any sufficiently advanced technology is indistinguishable from magic."

GENTRY LEE: After World War II, there was a big change in the way things were done in the world. A lot of it was due to something called satellite communications. You've been called the Father of Satellite Communications.

ARTHUR C. CLARKE: I prefer to be called the Godfather. The real fathers are the engineers who put their careers on the line to make it all happen. It began during the closing months of the war [World War II] when we space cadets of the British Interplanetary Society, formed in 1933, were looking around for ways in which rockets might be useful, instead of being employed to blow people up. It occurred to me that we could use rockets to launch satellites into orbits which would broadcast television or anything else to the earth. I wrote this up in a four or five-page paper, it was published, and that's where it all started.

GENTRY LEE: But I understand that the person who first received your manuscript thought it was a bunch of malarkey. How did it finally get published?

ARTHUR C. CLARKE: When I wrote the paper, the war was still on, so I had to submit it to the RAF [Royal Air Force] censor. It came back in a suspiciously short period of time. I always suspected that they thought it was such nonsense that there was no danger of giving away any secrets to the enemy. Then I sent it to a leading British publication, what we would call now an electronics magazine. The assistant editor thought it should be published. The editor said something like, "I don't want anyone to think we are publishing science fiction." But the assistant editor went ahead and made the case and the editor said, "OK, we'll publish it, but if it does turn out to be nonsense, you've had it." Of course, they are both very glad they did publish it.

GENTRY LEE: What do think are the most important changes that have occurred in our lives as a result of global communications? What changes do you think will occur in the future?

ARTHUR C. CLARKE: The communications revolution, of which satellites are only one part, has changed human society beyond all recognition. Perhaps the most important thing it's done is create a era of transparency. Although there are still some exceptions, it is no longer possible to hide what is going on anywhere. We are all living in glass houses. This, I think, is a very good thing.

GENTRY LEE: Do you have any conjecture about what will happen to this world when all these different complexes of communication satellites in low Earth orbit are launched and you can be contacted on your cellular telephone when you are up on the top of Adam's Peak?

ARTHUR C. CLARKE: The communications revolution has brought good and bad aspects. Of course, the obvious bad one—how are you going to get away from people you don't want to contact you? There are ways of doing that with secret code numbers and such. But on the positive side, think of all the lives that will be saved. In a few years, we won't be able to imagine how we could possibly have lived without these services.

GENTRY LEE: You once made the statement that the landing of human beings on the moon was both deeply emotional and a deeply satisfying moment for you. What were your first thoughts when you learned that human beings were going to the moon? What you were doing the moment we landed, and how did you feel about it?

ARTHUR C. CLARKE: I think one of the decisive moments in my life, as far as space travel is concerned, occurred when I was on an island in the Great Barrier Reef in 1955 and heard over the radio that the United States was going to launch an earth satellite. I realized then, of course, that space travel was taken seriously, even though it only involved an unmanned satellite. When President Kennedy announced that the United States would go to the moon, I knew it was inevitable—although I didn't know when it was going to happen.

GENTRY LEE: What were you doing when the *Eagle* landed on the moon?

ARTHUR C. CLARKE: I was present at the key points of the *Apollo 11* mission. I was at the launch at Cape Kennedy with Walter Cronkite and Wally Schirra. We were doing the commentary on the mission and Walter wanted to stay in the studio, but I went outside and watched the Saturn take off. It's an extraordinary experience which cannot be conveyed by TV. You're standing there, and there's this tiny little pencil out on the horizon—very small, sitting

on this huge horizon—and then you see Apollo's smoke and it starts to lift off. There is silence, of course, for a considerable fraction of a minute and ... then the sound hits you and shakes you and then this spacecraft just dominates your mind as it goes up. It's an indescribable experience.

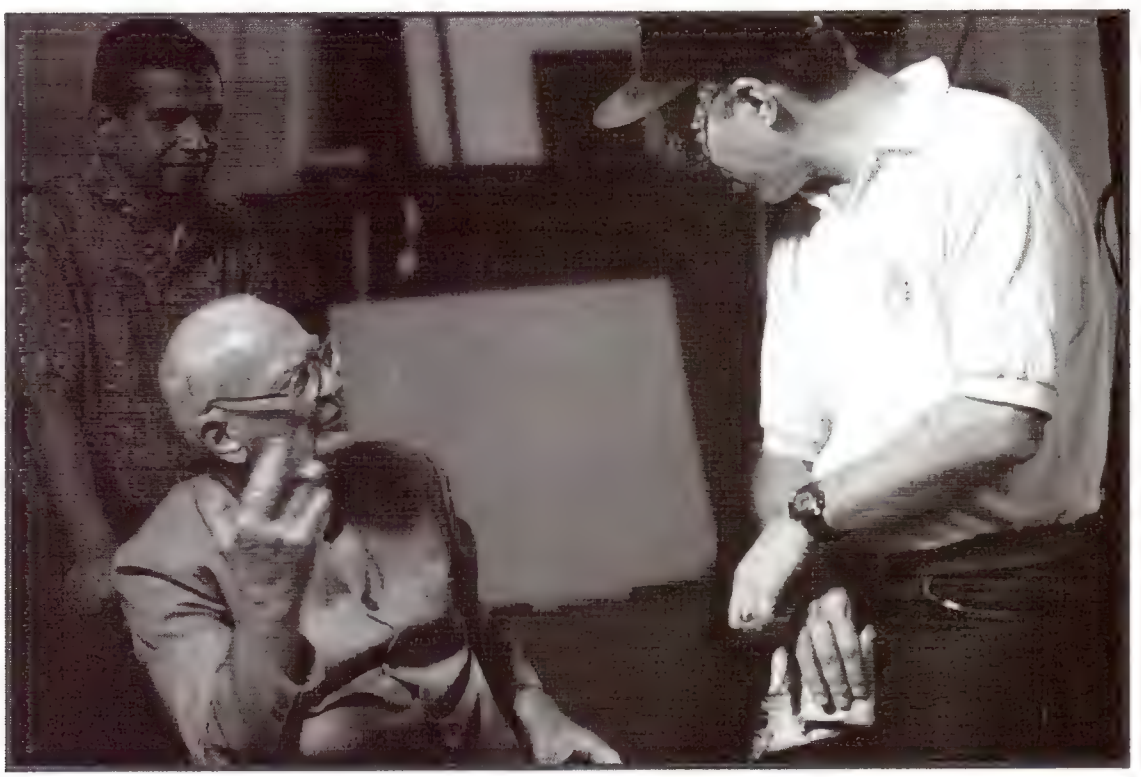
Now as far as the landing is concerned, when Armstrong walked down the ladder, I was back in the CBS studio with Walter Cronkite and Wally in New York, and I guess time just sort of stood still. You know, when he said that—"One small step for man"—well, what he had intended to say was, "One small step for a man," but he fluffed.

GENTRY LEE: There are several people who believe that the will of the human species and the geopolitical imperative to explore space have both gone now and that the first two decades of the 21st century will be barren in terms of new space achievements. Can you reflect on this belief?

ARTHUR C. CLARKE: There was an inevitable feeling of letdown after the manned lunar missions. But I think we have now passed that. One indicator is the success of *Apollo 13* [the movie]. People are once more interested in manned space travel. I'm sure we will go back to the moon with much better and safer and more economical spacecraft early in the next century. The real action is going to be on Mars, maybe 2020 or there onwards. As space travel becomes easier and safer and cheaper, we will inevitably go out to the planets. We have to wait for improvements in technology and when they come along, whether the will is there or not, we'll go.

GENTRY LEE: Some people have asked me, "Why should human beings go to Mars?" We screwed up this planet, all we'll do is screw up another one!

ARTHUR C. CLARKE: Of course, you might answer them, "Well, if we have screwed up this planet, then it is imperative that we go to Mars." But we have just quite recently had another very good reason for going into space. The whole world watched when Jupiter was clobbered by Shoemaker-Levy. And we know this happened to us in the past. It's happened many times in the history of our Earth. Sixty-five million years ago the dinosaurs were probably made extinct, or they may have been on their way out anyway, but that impact sixty-five million years ago finished off the dinosaurs. And as my friend Larry Niven once said, "The reason why the dinosaurs became extinct was because they didn't have a space program." If we don't have a space program, we'll deserve to become extinct. Because only with space technology can you do something to prevent catastrophic impacts from space.



GENTRY LEE: Recently, you've been spending a lot of time looking at a different area of scientific endeavor that could affect our future in a colossal way. You and I have had some lively interchanges, including some skeptical comments from me about something you've called "infinite energy." Do you believe that we are about to have a huge breakthrough in ways that we can generate energy for our daily lives?

ARTHUR C. CLARKE: I think there's a remarkable parallel here to what happened exactly 100 years ago when x-rays were discovered by Raunchen and the bottom fell out of physics soon afterwards. Then radioactivity came, discovered a few years later. This source of energy—material apparently getting energy from nowhere—well, conventional physics simply couldn't explain it. I believe—I am almost certain—that something like this is happening now. Because there are several different lines of research indicating technologies which can produce energy or get energy from somewhere. It all began about six years ago when Pons & Fleischman claimed to have produced nuclear fusion at room temperature and were laughed out of court. In the meantime, the last few years, they've holed up in France in a superb laboratory, financed by an obscure company called Toyota. In the last few weeks, they've been issued a European patent. This is exactly what I predicted they would do. I said they would stay there until they got their patents.

Yet I think they may have been bypassed by history. Because there are at least three other current lines of development. There's a thing called a Patterson Cell, demonstrated recently at an IEEE meeting, that produces about 80 times as much energy as goes into it. It only produces about five watts, but only miliwatts go into it. Now, this has a US patent, and you don't get a US patent unless you can demonstrate your process. Meanwhile, there are at least two other directions. A guy in Russia is making a thing called the Yashmar Heat Generator. Apparently, it takes a few kilowatts of electricity and produces about four times as much heat. Finally, and this is the most intriguing one of all, I know of a

Japanese gentleman who's made an electric scooter which a friend of mine has just been riding around London, going uphill at 75 kilometers an hour on a very small electric motor which doesn't even heat up. It's driven by a few batteries!

All these things are happening and I believe that something is going on. I have a number of theories to explain how these things might happen, but it's very exciting. I will be very surprised and very disappointed if at least one of these things isn't for real.

GENTRY LEE: Project us forward about 20 years and tell me what the ramifications of these discoveries might be for the man on the street.

ARTHUR C. CLARKE: Well, the term infinite energy has been used—in fact, that's the name of a magazine produced by Gene Maloff, who wrote the only good book on the subject, *Far From Ice.* Gene was in charge of scientific and technical publications at MIT and resigned in disgust over MIT's treatment of Pons & Fleischman. Infinite energy is obviously misleading. You can't have infinite energy, or infinite anything. But let's say that for all practical purposes, if we have all the energy we can use, it's going to revolutionize our planet. It will be the end of fossil fuels, the end of the nuclear age. It'll solve many of our pollution problems. It would change our world beyond all recognition, perhaps more than anything since the discovery of fire.

But, as in the case of all technological revolutions, there's a down side. If we had available, each of us, unlimited energy, thousands of kilowatts … well, you can't beat the laws of thermal dynamics. All energy eventually degrades to heat. Where is the heat going to go? The Earth might start warming up and maybe head toward the state of Venus—which is, I think, about 600 degrees in the shade. That's a rather scary thought. We'd almost certainly lose the Antarctic ice cap and the oceans would rise. Perhaps the best thing to do would be to put all our heavy industry out in space. Space could absorb any amount of excess heat.

GENTRY LEE: With respect to some of these new claims for new sources of energy, a lot of physicists I know pose the following question: "If it's that simple, why didn't somebody discover it before?" How can all these things be taking place and we didn't have a clue about them before?

ARTHUR C. CLARKE: It's a good point and there's some historical parallels. The most interesting one is the Wright Brothers. You know, when the Wright Brothers flew in 1903, for five years afterwards the American press were still publishing articles, distinguished technical journals were publishing articles, saying that heavier than air flight was totally impossible. Editors wouldn't bother to send their reporters to watch the Wrights flying around, even though they were in full public view. It wasn't until 1908, when the Wrights went to France—as Pons & Fleischman have done—and started flying, that the contemporary media finally said, "My God, this is for real!"

There are other examples. The transistor was invented 30 or 40 years ago, but no one could make transistors then because you couldn't get the necessary purity of materials. Things may be discovered. Now we know that super conductivity exists. It's used for all sorts of purposes. There is no accepted theory of super conductivity. We don't know why it works. Yet, although there is evidence that points to possible sources of "infinite energy," many physicists/scientists are skeptical. In fact, they should be skeptical. You can't accept every crazy idea that comes along. But in the case of new sources of energy, there are several possible theoretical explanations. One of the most interesting ones is something called sonar luminescence, which may explain the action of these devices that produce heat from water and liquids flowing. It's a fairly well-known phenomenon, but its theories only recently have been worked out. If you beam high frequency sound waves through water, say about 20 or 30 thousand cycles, something very interesting happens. Bubbles form. This is known as cavitation. It occurs behind propellers or motors on ships. Bubbles form and then collapse, and this can damage propellers—propellers are eaten away by this cavitation effect. But when you have this produced by ultrasonic sound, the bubbles are very small

and they become even smaller as they collapse. If they collapse symmetrically, they give flashes of ultra-violet light. This is because they reach temperatures of literally millions of degrees—hot enough perhaps to cause some kind of fusion effect on a small scale.

Now, that is one possible explanation of some of these reported phenomenon. The other thing is much more interesting. It's something called zero point energy or quantum fluctuations. It's not generally understood that what we call empty space is actually a seething mass of energy. Atoms or fundamental particles are appearing out of nothing and then disappearing again. The famous Nobel physicist Richard Feynman summed it up very well when he said that a cubic meter of vacuum contains enough energy to boil all the oceans of the earth. Now, we know that energy is there. It was detected in the Phillips Laboratories by a man named Dr. Cassimer many years ago—it's called The Cassimer Effect. If we can tap it, enough to boil all the oceans of the earth, that would be infinite energy. But this is all so scary. Nuclear energy gave us the power to destroy the earth. Zero point energy puts the solar system at risk. Indeed, I have suggested many times that perhaps supernovae are really industrial accidents.

GENTRY LEE: Arthur, you are often mentioned as one of the two or three grand masters of science fiction. Tell us about your relationships with Robert Heinlein and Isaac Asimov, if you would please.

ARTHUR C. CLARKE: Heinlein and Asimov have been two of my best friends. Although I had a falling out, I'm sorry to say, with Bob Heinlein over the Star Wars [space-based anti-missile defense] program, which he was for and I was very much against. At least in some of its more extreme manifestations. Isaac Asimov, again, was a very good friend. We used to pull each other's leg mercilessly. I could tell you a lot of stories about the jokes we used to ... well I can't imitate Isaac's Brooklyn accent very well ...

GENTRY LEE: What's your favorite Asimov story?

ARTHUR C. CLARKE: My favorite Asimov story is one he told at a science fiction convention during one of his last public appearances. He said he'd gotten a letter from me about a phenomenon that had just occurred. An airplane had crashed somewhere, and during the time the pilots were desperately trying to find a landing place, one of the passengers, to distract himself, was reading an Arthur Clarke novel. This was reported in the press and Isaac said, "Arthur Clarke, as is want, made 700 copies of this and sent it to 700 friends and various strangers. He sent one to me and said the fellow should have been reading one of my books. Then he would have slept through the whole thing." Of course, there was a roar of laughter from the audience. Then Isaac said he wrote back to me, saying, "Dear Arthur: He was reading one of your books because if the plane did crash, death would have been a merciful release." (Laughs.) Well, Isaac and I had this sort of relationship for many years and I miss him badly. His death was a great loss, not just to science fiction, but to the community as a whole. He was a voice for reason and sanity in a period when I'm afraid too many other voices were being heard.

GENTRY LEE: Did you even suspect, back in the early days when you were writing your first stories, that you could actually earn a living writing science fiction?

ARTHUR C. CLARKE: Back then, I never imagined that I would become a professional author. I wrote entirely for fun in a school magazine in my late teens, and wrote later on for amateur science fiction magazines. Made a few dollars here and there and then I got a job, a very good job in the Institution of Electrical Engineers, editing science abstracts and getting all the world's scientific magazines through abstract. But I was still writing, you know, in my spare time. And then my salary at the Institute went like that. [He motions downward.] Where my income as a science fiction writer went up. Of course there was a point that I just resigned my job and—no hassle, no problems.

GENTRY LEE: Describe your first commercial and critical successes.

ARTHUR C. CLARKE: What really established me was when the Book of the Month Club took *The Exploration of Space,* one of the first popular accounts in English of what space travel might be like and how it would be done. That was in 1951–52. I can remember when my agent, Scott Meredith, called me from New York to London, which very few people did in those days, and said that the Book of the Month Club has taken *The Exploration of Space.* And my reaction was, "What is the Book of the Month Club?" My agent never got over that. [Laughs.]

GENTRY LEE: As I recall, Clifton Featherman …

ARTHUR C. CLARKE: Right. The Book of the Month Club issued a little leaflet announcing its choice so members could decide whether or not to buy it. Clifton Featherman, or Kit Featherman, as everyone calls him, I'm sure to reassure his nervous membership, said, "Arthur Clarke does not seem to be a very imaginative man," and I've never really forgiven him for that. By the way, the

alternative choice that month was Barnaby Conrad's *Matador,* about bull fighting. Since I hate bull fighting, I thought it was rather ironic. I actually met Conrad a few years later in San Francisco.

GENTRY LEE: What was your first successful work of fiction?

ARTHUR C. CLARKE: Well, I published a number of novels—*Sands of Mars, Birds of Space*—from a small press, a little known press, but I think the first real success was certainly *Childhood's End* when Ballantine took it and it got very good reviews, including one from the *New York Times.* So that was my first commercial and indeed critical success outside the science fiction ghetto.

GENTRY LEE: Two hundred years from now literary historians—you know the type I'm talking about—will make broad sweeping statements about people's careers and their work. Of your fictional work, what do you think will survive and why?

ARTHUR C. CLARKE: Well, of course it's totally impossible to imagine what the world two hundred years from now will be like. I mean, in 1795 could they imagine us here? Whether anything of mine will be known except as an obscure footnote—or whatever the electronic equivalent of a footnote is in a couple of hundred years—I have no idea. If I am remembered at all, it would probably be because of the Clarke Orbit, not my fiction. Of course, I would hope that some of my work is remembered, certainly my favorite novel, *The Songs of Distant Earth.*

GENTRY LEE: Why is *The Songs of Distant Earth* your favorite novel?

ARTHUR C. CLARKE: Oh, I guess as where I put my brain into many of the other ones, I put my heart into that one. I'm often asked which is my favorite novel or which is my best novel. Well, as for my best novel, *Rendezvous with Rama* and *2001: A Space Odyssey* are often mentioned, but I think possibly my best novel may be *The Fountains of Paradise.* Although I'm biased—it's set in Sri Lanka. But again, my favorite novel is *The Songs of Distant Earth.* It's set on a far off planet after the Earth's been destroyed, and I'm quite emotionally involved in it. I wouldn't care to examine why.

GENTRY LEE: When people learn about our collaboration, the question I'm most often asked is, "Why does he live in Sri Lanka?" Once and for all—from the top—would you give us a summary of how you became acquainted with Sri Lanka, how you decided to live here, and why you have remained for forty years?

ARTHUR C. CLARKE: Most of the important things in life happen by chance, I've decided. I became interested in skin diving because I realized that underwater, one could reproduce weightlessness, the phenomenon most apparent in space travel. So I took up diving and, as I like to make my hobbies pay for themselves, I persuaded my publishers to let me do a book on the Great Barrier Reef. I sailed from London in the *SS Himalaya,* and we stopped one afternoon in Colombo. I had already been in touch with one of the local skin divers, Rodney Jonklaas, who was a marine biologist and a pioneer of underwater exploration in Ceylon, as it was then. He said to me, "Why don't you come back if you survive the sharks of the Great Barrier Reef?"

Well, I went on to the Great Barrier Reef and was there in 1954–55, and then I came back to Ceylon with my partner, Mike Wilson. We did a book about the Indian Ocean and Mike married one of the local beauties and, you know, we just liked the whole atmosphere of the place and made many friends

and settled down here. However, when people ask me "Why do you live in Sri Lanka?" the quick answer I often give is, "Thirty British winters."

GENTRY LEE: Most of the world knows you primarily because of a motion picture that was made about 25 or 30 years ago. What was the moment when you knew that that picture was going to be a big success?

ARTHUR C. CLARKE: When *2001: A Space Odyssey* was released early in '68 — and it's already had its 25th anniversary, which I can't believe—everyone thought it was a disaster, at first. I can remember one of the MGM executives at the Washington premier saying, "Well, that's the end of Stanley Kubrick." In fact, the first reviews were lukewarm or even critical. And then the critics went back and saw it again and changed their minds. But there was a slow ground swell. It took a couple of weeks before the message got around and we realized, in the month, that we did have something exceptional on our hands. I don't think there was any actual moment when we said, "Eureka, this it, we have a hit."

GENTRY LEE: The credit for the screenplay lists Arthur C. Clarke and Stanley Kubrick. Who did what?

ARTHUR C. CLARKE: At this time, there's no way of telling who did what and with which and to whom. After this lapse of time, I could no longer say what ideas were mine and what were Stanley's, with a few exceptions. Some of the basic ideas came from some stories of mine, particularly "The Sentinel," a very short story about the discovery of the fire alarm, if you like—a device on the moon, left by some alien race to alert the universe when we've reached the moon. This was an idea which was taken quite seriously. It has been suggested such alarms are perhaps not on the moon, but in the asteroid belt, which we

may trigger when we get there. That was my idea. Then we embroidered so many concepts. It was like table tennis, batting ideas back and forth. Ninety percent of them were probably bad and the ten percent that survived were probably half Stanley's and half mine.

GENTRY LEE: *2001* became a cult movie and a large number of people of my generation got high and went and sat and watched the movie because it was an unusual trip. Did you know this was going on? If so, did you have any reaction to the culture of the time and the way it used *2001*?

ARTHUR C. CLARKE: I saw *2001* as a realistic movie about space travel. But when it was released, the final sequences—in particular in the psychedelic trip through the stargate—turned on a lot of young people who—as I understand, with certain chemical assistance—saw things in the film which I never did. I'm almost ashamed to say that I've never taken any drugs of any kind so I don't know what this is all about. We were glad to cooperate with the inevitable and get some publicity from this. In fact, MGM eventually put out another poster which called the movie "The Ultimate Trip." They got the message.

GENTRY LEE: *2001: A Space Odyssey* was a movie that probably prompted members of the popular culture to think for the first time about the place of the human species in the universe. Do you believe that there is intelligence out there far more advanced than we are … and if so, can you speculate on what situations it might choose to contact us?

ARTHUR C. CLARKE: When Stanley Kubrick approached me, he said we want to make a film of mythic grandeur. In other words, one of those that stretches people's minds. At one time, and this was not received very well at MGM, we thought: They don't know it yet, but MGM is making the first $10

million religious movie. Of course, $10 million now is nothing, but that was lots of money in those days. The main theme was the question of man's position in the hierarchy of the universe. Are we nearer the apes or the angels? Indeed, are there any angels or their equivalent out there in space?

I hope that I will see an answer to this question in my lifetime. Nobody knows. They may arrive, or we may discover that they are in existence tomorrow, or it may take a thousand years. Some members of the scientific community think we are alone in the universe, which is pretty awesome thought. But I think most people agree with me that it seems incredible that in this gigantic universe, we are the only life form or the only intelligence. I would bet almost anything that there's lots of intelligence out there. I mean, it's quite possible that there may have been visitors here on earth in the remote past. Unfortunately, nonsensical and fraudulent books have made it difficult for serious scientists and researchers to look into this.

GENTRY LEE: A very wise historian, a friend of mine, made the comment that on the day we have a clear, unambiguous signal that intelligence exists in outer space, all human history will pale with insignificance.

ARTHUR C. CLARKE: There has been much discussion of the impact on our society of the discovery of intelligence elsewhere. Of course, it would depend a great deal on how it happens. If something lands on the White House lawn with ray guns blasting, that would be rather dramatic, but it's much more likely that we'll pick up a signal which has been traveling ten thousand years or longer from a civilization which may no longer exist. [The ramifications of this discovery] would eventually permeate every level of society, just as the realization that the world is round or that we evolved from lower animals eventually permeated society and changed the outlook of every intelligent person.

GENTRY LEE: There's been an evolution in both literary fiction and motion picture fiction in depicting the nature of extraterrestrials over the past twenty five or thirty years.

ARTHUR C. CLARKE: It's interesting how our attitude toward extraterrestrials has changed. In H.G. Well's famous *War of the Worlds,* Martians came to earth and sort of clobbered us until they were clobbered by bacteria. Most aliens in the pop era were hostile or malevolent and you can see why—because you have a nice dramatic story. It wasn't until fairly recently that aliens became friendly. [The movie] *E.T.* may be the turning point in some ways. Of course, I'd like to think that a higher civilization wouldn't be malevolent. On the other hand, if it's high enough, they might decide they need the flip gun to deal with us.

[Author's Note: Obviously, this conversation took place before the summer of 1996 made *Independence Day*, with its brutally malevolent extraterrestrials, one of the highest grossing films of all time.]

GENTRY LEE: How do you think an advanced extraterrestrial civilization would regard us? What would you think their evaluation of us would be?

ARTHUR C. CLARKE: Recently, I had the privilege of talking to Mr. [Ted] Turner and Mr. [Rupert] Murdoch, and I raised this point. I mentioned that our television programs now occupy a sphere maybe a hundred light years across, and many civilizations may therefore know about us, about our atrocities, our wars, our crimes, both fictional and real—and it might be difficult for an alien intelligence to distinguish between fictional and real. From that, I deduced that there aren't any higher civilizations within, say, 50 light years of Earth. Because if there were, their cops would be here already with their sirens screaming right across the radio spectrum.

GENTRY LEE: (Laughs.) That's good. I like that. OK, moving now to a more important subject …

ARTHUR C. CLARKE: Is there one?

GENTRY LEE: Yes. It's been said that you're a reasonably good table tennis player. When did your love for table tennis begin and what role does it play it your life today?

ARTHUR C. CLARKE: I started playing table tennis when I shared a flat with the late William F. Temple, who was the first of us British science fiction writers to be successful and the first one to sell something to the movies. He wrote a novel called *The Four Sided Triangle* which became a movie that you may catch on late night TV sometime. We shared a flat at 88 Grays Inn Road, and in the little kitchen we played table tennis on a very small table. So it was Bill who introduced me to table tennis.

But I didn't take it seriously until the war. It was serious recreation in the Air Force. Also when I was fire watching in my civil service office in London. We had to stay at the office overnight to put out any incendiary bombs. I played right through the Air Force and when I went to college, Kings College London, again it was recreation. I don't know exactly why I took it up and became obsessed by it—I've never liked any games. I mean I'm a one man player. I wouldn't get involved in football or cricket. I agree with the American who said about cricket: "It's the slowest form of animal life."

GENTRY LEE: Are you a good table tennis player?

ARTHUR C. CLARKE: I'm not really a good table tennis player, but I can beat most of the ordinary run of the mill players, and I'm quite limited now because I can't move around and I have to hold on to the table with one hand to support myself. So unscrupulous opponents can put the ball there on the sure knowledge that I can't do anything about it.

GENTRY LEE: How often do you play?

ARTHUR C. CLARKE: I play every day for about an hour. I have to rest between games, but unless something important turns up or I don't feel well, I play literally every day at the Otter's Club about a mile from here.

GENTRY LEE: Describe for us an ordinary day in the life of Arthur C. Clarke.

ARTHUR C. CLARKE: I'm awakened by that excellent Sri Lankan institution — bed tea—at 6:30 AM. My radio goes on and I hear the Voice of America news. I do my leg exercises in bed for about fifteen minutes and then about 6:45 I hear the local radio news. I get up about 7:00, come down and have breakfast, and I'm usually at my desk by 7:30. There, I catch up with the faxes and anything that's come overnight. Then I'm hard at work certainly by 8:00. At 12:30 PM, I have lunch for about a half an hour and then about 1:00, I go to bed for about an hour or so. I get up and have tea about 3:00, work for a couple of hours, then go to the club for my table tennis, dinner about 7:30. I'm in bed no later than 10:00 PM.

The next interview session was conducted by Kate Kloos, Sierra's executive producer for the *RAMA* project. This discussion focuses more on the Rama novels, the collaboration between Arthur C. Clarke and Gentry Lee, and the eventual metamorphosis of Rama into a computer adventure game.

KATE KLOOS: Take us back a little bit and tell us about your original idea of Rama and how that came to be.

ARTHUR C. CLARKE: The idea of very large spacecraft—in fact, space cities—is quite old. It goes back to the Tsiolkovsky, the pioneer of space thought in the last century. [Author's Note: Russian scientist Konstantin Tsiolkovsky is considered the father of modern astronautics. Around the turn of the century, he calculated escape velocities, developed other mathematics of spaceflight, and wrote extensively of space colonization.] As I said earlier, I remember one specific illustration in a book on space travel which really triggered Rama. It was a large asteroid, hollowed out, with a city inside. So the basic concept of Rama was not mine. But of course I worked out the details and the mechanics of it in writing the novel. The late Jerry O'Neill wrote the book *The High Frontier,* about large manned colonies in space. I'm sure that one day they'll exist and perhaps they may be used to go on to the other stars because that's one way of reaching other solar systems. Voyages that last maybe hundreds of years in completely self-contained cities.

By the way, the dedication of *Rendezvous with Rama* is to Sri Lanka where I climbed the Stairway of the Gods. The Stairway of the Gods is a way you get into Rama. That was inspired by a real place, the immensely long stairway, several miles long, leading up to the summit of the sacred mountain, Adam's Peak. Which incidentally is the locale of my other novel, *The Fountains of Paradise.* I really used Adam's Peak. I have a very fine painting here showing the Stairway of the Gods and it is a wonderful sight to see, this line of lights climbing up into the sky.

KATE KLOOS: Are there other places in Sri Lanka that you've used in your novels?

ARTHUR C. CLARKE: I've used the Rock Fortress of Sigiriya in the center of Sri Lanka. In the fifth century, the King of Sri Lanka was a tyrant who killed his father, built pleasure gardens and a palace there on the top of the rock, and retreated there. Eventually his brother, his half-brother, came and they met in

battle and he was killed. It was a very dramatic and tragic story and Sigiriya itself is one of the most awesome places I know. I tell people if you're only in town to see one place in Sri Lanka, go to Sigiriya. Sigiriya and Adam's Peak are both locales in *The Fountains of Paradise.*

KATE KLOOS: How did you come up with the name Rama?

ARTHUR C. CLARKE: That's another good question. I have no idea. (Laughs.) But of course I was living in a country much influenced by Hindu mythology and so if I hadn't been living in Sri Lanka or Ceylon at that time, I might have come up with a totally different name.

GENTRY LEE: It might have been "Rendezvous with Thor."

ARTHUR C. CLARKE: Thor. That's true. Yes, the *Hammer of Thor* is the name of a science fiction novel.

KATE KLOOS: Just recently, NASA introduced a new program called "Space Guard."

ARTHUR C. CLARKE: Yes, I'm very pleased to say that they took that name from Rama. Several years ago, Congress told NASA to look into the problem of asteroids which might impact the earth—a very topical subject now—and NASA set up this project which they call Project Space Guard. In their report, they actually refer to the fact that they took the name from *Rendezvous with*

Rama. The whole subject of asteroid impact has now suddenly become much more important since the collision of comet Shoemaker-Levy on Jupiter. Millions of people have seen this sort of thing happen on the TV screen.

KATE KLOOS: So Project Space Guard really blends science and science fiction. How do you see the relationship between science and science fiction?

ARTHUR C. CLARKE: Well, science fiction is usually an extrapolation of known science or least plausible science. Incidentally, science fiction does not, as many people think, try to predict the future, though it does try to predict the technological future, perhaps—what might be possible if certain scientific fields are developed further or if new branches of science are discovered.

KATE KLOOS: Back in 1986, you got a call from a prominent scientist who wanted to talk to you about writing science fiction. Can you tell us about meeting Gentry Lee?

ARTHUR C. CLARKE: (Laughs.) Yes I can. I had a letter from my agent saying that there was someone that had some idea for a science fiction story and he wanted to work with me. Well, I said no way, I have too many ideas of my own. And then my agent said this fellow was involved with the Galileo project—the space probe to Jupiter. Of course, I had been very interested in Jupiter—it's the setting of much of the action in the Odyssey series. So I said, "Oh yes, I would like to see this fellow." I thought it wouldn't do any harm to talk to him. I might get some good ideas from him.

KATE KLOOS: And so Gentry shows up on your doorstep all the way down here in Sri Lanka—with a gentleman named Peter Guber, I believe.

ARTHUR C. CLARKE: Yes, Peter Guber, the film producer. Peter wanted to make a science fiction film. He was a fan of mine and Gentry had this story idea, which Peter thought he might make into a movie. They thought maybe I could write the screenplay or we could work on it together. It was quite an interesting idea, and it was eventually developed into the novel *Cradle*; which Gentry and I wrote together. But then Peter was hijacked by Sony Pictures for a few hundred million dollars and that was the end of that.

KATE KLOOS: I think about Gentry arriving on your door step. We work with him at the office every day and know what a "Type A" person he is, excited and energetic, and I understand that Peter Guber was just as excited. What happened when that ball of energy came into your home?

ARTHUR C. CLARKE: Well, in those days I had rather more energy than I have now, so I think that I was able to cope with them.

KATE KLOOS: Gentry do you remember that first meeting?

GENTRY LEE: Yes I do. First of all, Peter and I had flown all the way from Los Angeles to Sri Lanka, and nobody had ever spent that much time with Peter Guber. He does not sit still on an airplane. He was always up wandering around seeing what could be going on hither, thither, and yon. My clearest recollection of that trip is after we'd met with Arthur, actually, and Peter said, "Hmmm, this has interesting possibilities." We took off from Katunayake (Colombo's airport).

Peter was talking about all the other things he and Arthur might do together and suddenly there was a loud boom on the plane and the four hundred million dollar man grabbed me and said, "Oh my God, we're going to die!" I had to talk to him about aerodynamics and the noise in airplanes and other such stuff before he would relax.

ARTHUR C. CLARKE: Doesn't he fly?

GENTRY LEE: Yes, he flies all the time. But this particular noise was one of those that even drained the flight attendants' faces.

ARTHUR C. CLARKE: Was it Air Lanka or British Airways?

GENTRY LEE: It was Air Lanka.

ARTHUR C. CLARKE: Just the wheel falling off! (General laughter.)

KATE KLOOS: Gentry, when did you first became aware of Arthur Clarke?

GENTRY LEE: I first became aware of Arthur when I was a young, starry-eyed teenager full of dreams of my own about what things might happen in the future, and I read a book called *Childhood's End.* And I still get goose bumps when I think about what I was feeling when I read that book. I was absolutely overwhelmed that someone could have such a clear vision and make it into an emotional thing as well. And so I thought, well, I've got to find out more about this guy. And so I read more and more of his stories.

When I was an adult and working on the Viking program, we were getting ready to fly to Mars and I heard that he had written a new book called *Rendezvous with Rama.* One of my friends had read it and said, "If you like Clarke, you'll love this book." I said, "Who's Rama?" and he said, "I'm not going to spoil it for you." So I started reading the book. I'll never forget; one night I pictured this gigantic cylinder sitting out there in the middle of space, and I had this hunger—it was really a hunger—to go inside that ship and see what it was like. It was a beautiful moment. And so I was a devotee.

When Peter Guber asked me if I would come to Sri Lanka to talk to Arthur, it took me about two milliseconds to agree to do it. But we'd just had our first child. I was supposed to leave just ten days after Robert was born. And so I asked Stacey, my wife, if it was all right and she said fine. While Peter and I were here, Arthur said, "We might be able to collaborate on this novel, *Cradle,* but I'm not sure." He was hedging his bets. He said, "If you'll come back we'll see if we can hammer out the story." I did come back, and we went up to that place ...

ARTHUR C. CLARKE: Hunis Falls.

GENTRY LEE: Right, Hunis Falls. But this time I wasn't with Peter Guber and I was not being paid by Peter Guber's people and so now I tell my wife who has just given birth to a child I'm going back to Sri Lanka to talk to Arthur about this book we might write. It was a wonderful experience.

KATE KLOOS: What were those first collaborative sessions like?

ARTHUR C. CLARKE: Well, you see, I ended *Rendezvous with Rama* with the phrase, "The Ramans do everything in threes." A lot of people thought that I was heading for a sequel then, but for years I said no, no, I just felt that was the

right way to end the book, I will never write a sequel to *Rendezvous with Rama.* But then this guy (indicates Gentry Lee) came along. He had one or two ideas about engineering and so forth. I realized that if I wanted to develop this further … after all, if the Ramans do everything in threes, there may be two more spacecraft coming, or maybe one's already come and anyway, we have possibilities here, so let's look into it. And one thing led to another and another and another. Right?

GENTRY LEE: Actually, I remember the very moment that Arthur asked me if I would be interested in collaborating with him on a sequel to *Rendezvous with Rama.* We were halfway through the *Cradle* manuscript and he had just about decided that I was a passable collaborator. Arthur keeps a list of all the projects that he's got going. He brought his list—I was getting ready to go back to the United States—he brought his list as he always does, of future projects. And down in the middle of this list of future projects was written: "Rama sequel with collaborator." He had three question marks written at the end of the thing and I said—I jumped up and said—"Oh, are you going to do a sequel to *Rendezvous with Rama*?" He said, "Well, yes," and he got this little puckish look on his face and he said, "But I haven't talked to my collaborator yet. Would you be interested?"

We sat down that day and started making the tale that eventually became all three books. And as he has said many times, we actually had ten books there for a while. Within six weeks, our agents had made it into a real project and we were off and going.

ARTHUR C. CLARKE: At that time I was contemplating only one sequel, I think. But my agent, the late Scott Meredith, who was a real go-getter, sent me a contract for three books. *Rendezvous with Rama* started it and *Rama II* was the first of the sequels by Arthur Clarke and Gentry Lee. *The Garden of Rama* was much more Gentry Lee than Arthur Clark and the final one, *Rama Revealed,* should have been just by Gentry Lee.

GENTRY LEE: Thank you.

KATE KLOOS: Your writing styles are quite a bit different. Over the years, in the collaborative effort, did you ever say to Gentry, "No, you can't do that—you can't write like that"?

ARTHUR C. CLARKE: I'm sure I have said that from time to time and I should have said it more often when we were writing *Cradle*, but I was very "old" during that period—I thought I had only a couple of years to live—so I wasn't really too interested in literary matters.

GENTRY LEE: If I have one regret ... well, *Cradle* was commissioned by the movies. We were urged to include things that I wouldn't ordinarily include—a little gratuitous sex, if you will. It was embarrassing for Arthur, and I've apologized to him. We don't have any gratuitous sex in the Rama novels.

ARTHUR C. CLARKE: Sex is never gratuitous.

KATE KLOOS: Has working with Arthur influenced your work, Gentry? What have you learned?

GENTRY LEE: The most important thing I've learned is the precision of the English language. I tend to be verbose, to use five words where two or three will do. But it's been a great experience for me to observe Arthur's felicity with the language. Most people who ask what it's like writing with Arthur C. Clarke are

engineers. The analogy I give them is this: Imagine studying aerodynamics with Von Karman or relativity with Einstein. That's what it's been like.

Another thing. Arthur has been gracious with me at all times. I remember certain phone calls. Something I'd written was just terrible, just flat terrible, and after reviewing it over the phone with Arthur, I knew it was terrible. But he never once said it was terrible or even suggested I have a problem. He'd say something like, "Have you reconsidered this passage? Perhaps," he would say, "it's a little long." And then of course, later on we would excise it all together.

ARTHUR C. CLARKE: It reminds me of my collaboration with Stanley Kubrick. I would give a few pages [of screenplay] to him. He'd look at it and say, "That's fine! However …"

KATE KLOOS: You two have become not only writing partners over your ten years, but you've also become good friends.

ARTHUR C. CLARKE: Yes, that doesn't often happen when people collaborate on a book.

GENTRY LEE: That's right. That's right.

KATE KLOOS: And through this friendship you talk often on the phone, you e-mail, keep in good contact. What are some of the things that you talk about most?

ARTHUR C. CLARKE: The Galileo project.

GENTRY LEE: Yes, wow. Arthur is very, very interested in the Jovian Systems. The sole mission of Galileo, for which I was the Chief Engineer, was to explore the Jovian system in detail for humanity. Galileo has had a lot of difficulties. First, the project was delayed for four years while NASA decided what the upper stage was going to be. When the *Challenger* disaster occurred, Galileo was delayed another three years and just basically sat in storage while the shuttle was fixed. Then instead of sending it out towards Jupiter, it was sent to Venus first because it needed a kick from Venus since the shuttle couldn't do its thing.

Through all this Arthur commiserated with me. He told me early on that when Galileo got to Jupiter, he might write another Odyssey novel. But as it became longer and longer and longer before it got there he said, "I'm going to die before it ever gets to Jupiter." Now of course Galileo is about to arrive at Jupiter, but it's ... how should we say ...

ARTHUR C. CLARKE: Crippled.

GENTRY LEE: ... crippled. Well, if we put a good spin on it, it's not up to snuff. So the data is going to come back at such a slow pace ...

ARTHUR C. CLARKE: We won't live long enough to get the first picture.

GENTRY LEE: Maybe. So we talk about Galileo a lot. And about space in general. But his mind continues to absorb things across the entire spectrum of scientific endeavor. Right now, almost every conversation we have takes us off on

some variation of cold fusion and infinite energy. From time to time, I'm a little bit skeptical. I'll say, "Now Arthur, have you really looked carefully at the physics associated with this? Has anybody done this?" "Right!" he says. We're in the process.

ARTHUR C. CLARKE: Yes. As I discussed with Gentry earlier, I am very interested in these new energy sources. The whole discussion began about six years ago when Pons and Fleischman announced they'd produced cold fusion. The attempt to fuse hydrogen into infinite energy—what the suns does, the way the sun's powered—involves tremendous pressures and tremendous temperatures and the idea that it can be done in a bottle in the kitchen is fantastic.

KATE KLOOS: Are there any areas, science topics, in which you just flat out disagree?

GENTRY LEE: Oh, I think in the beginning I was worried that Arthur was wandering off course with this infinite energy business. But he assured me he was well-grounded and asking all the same questions that I was asking him. I have to admit, in this particular situation he's about to make a believer out of me. I still have a few issues I'd like to see resolved from a theoretical physics point of view. But it's very exciting to see Arthur's vision of the future and how it's shaped by the things that are going on today. I owe a lot of my ability to project into the future with analogous thinking to the way he approaches things. I've learned this from his non-fiction works, his essays and so forth.

ARTHUR C. CLARKE: The phrase "cold fusion" is rather passé. In fact, it may not be fusion at all. But if this is for real, and I am now 95% convinced that it is, it will open up the universe because it would give us essentially weightless power. The problem with rockets or any means of propulsion in space is that

you need gigantic quantities of fuel to carry a tiny payload. But if this infinite energy works and can provide a method of propulsion, then the universe will open up just as wind power—the sailing ship—opened up the world.

KATE KLOOS: If the universe opens up, would you like to be an astronaut and head off to Mars?

ARTHUR C. CLARKE: Well, I'm afraid it's a little too late now. I don't even like going in airplanes anymore, I'm afraid. But maybe. It takes a long time to get to Mars—six to eight months at the minimum, isn't it?

GENTRY LEE: Right.

ARTHUR C. CLARKE: I'm afraid I couldn't face that sort of thing. But if a flying saucer landed and said I'll take you to Alpha Centauri, now that's another story.

KATE KLOOS: What did you think when Gentry suggested you turn the Rama story into interactive entertainment?

ARTHUR C. CLARKE: I said, "What is that?" Remember, I hadn't seen any of these new multimedia products and I really had no idea what was involved. But now I'm extremely impressed with what I have seen.

KATE KLOOS: You got a chance the other day to see the Avians and the Octospiders when we [the Sierra design team] brought some of the early work on *RAMA*. What did you think?

ARTHUR C. CLARKE: I was amazed at the quality of the graphics. Particularly the animation, which is unbelievable—almost *Jurassic Park* quality. You could really believe that those Avians were for real, and the Octospiders are also very impressive. Incidentally, they're very much like a real thing on the Great Barrier Reef with those colored bands. There's a little octopus on the Great Barrier which is one of the deadliest things in the sea. It's got a venom about 50 times more poisonous than cobras. So if you're ever snorkeling on the Great Barrier Reef and you see something like the Octospider in *RAMA*, don't go near it! (General laughter.)

KATE KLOOS: Today you filmed some scenes where you're inside Rama. Would you go aboard a Rama? Would you go out and explore?

ARTHUR C. CLARKE: Well, if I was about fifty years younger, I think I probably would.

KATE KLOOS: And if you were on Rama, what might you go look for first in the Rama universe?

ARTHUR C. CLARKE: In Rama, you aren't "looking for" anything specific, really. You're just discovering new wonders. Everywhere there's something new that you've never even conceived of.

KATE KLOOS: Gentry, what about you?

GENTRY LEE: Well, it's absolutely clear what I would do. I like the Avians, but I'd determine very quickly that they were not more advanced than the human species. The Octospiders would fascinate me. I'd see the colors streaming around their heads, and I'd want to speak to them in their language. I'd want to understand where they came from, how they evolved, what their past history was, what their goals were, what their values were. That would be where I'd go.

KATE KLOOS: Arthur, you know we talk a lot about people sitting down and playing games for 30, 40 hours. Do you think interactive gaming is going to change written science fiction?

ARTHUR C. CLARKE: Yes, it may impact pretty badly on old fashioned paper publication. On the other hand, think of all the wonderful trees that are going to be saved.

KATE KLOOS: Not every science fiction novel gets made into a major motion picture like *2001: A Space Odyssey.* So when you can take a book and put it into a computer game where you have the graphics, and the creatures, the aliens, are breathing and talking to you, do you think that's going to change the way your fans respond to science fiction?

ARTHUR C. CLARKE: It will open up a whole new market, I think. There are people—there will always be people—who prefer to use their own imagination, to read a book and see it in their own mind. On the other hand, there are people who also enjoy the visual side of it. You know, there are very few literary

characters that we really see as individuals unless they have been created by artists. Sherlock Holmes is perhaps the best example of this. We all see the same Sherlock Holmes only because of one artist. So there's always been a symbiosis between the visual arts and written fiction.

KATE KLOOS: People who play *RAMA* may change the outcome of the original story that you two created because they can make decisions in the game. How do you feel about that?

ARTHUR C. CLARKE: I'm not quite sure how I feel about that. One of the criticisms of this kind of interactive adventure is that it is not what the original author created. I mean, would you like Hamlet with a happy ending? But I hope this sort of thing will educate people. It'll make them visualize, in the case of the Rama series, the scope of the universe, the fact that we are probably not alone. It will help stretch their minds. That's why I like this particular game. I am very much against the violent stuff—another Martian bites the dust, that kind of thing. At least, anything that gets clobbered in our adventure deserves to be clobbered.

KATE KLOOS: We came down here to film you—you will be the star of *RAMA*. What I can't figure is—well, you squeezed us into your schedule, you had two TV programs last week, you have meetings, people calling you all the time. Why do you work so hard?

ARTHUR C. CLARKE: I don't work; I have fun. I do only the things that I enjoy doing, and I'm always very careful to get plenty of sleep, to eat properly, and get as much exercise as I can.

KATE KLOOS: And so this isn't tiring you out?

ARTHUR C. CLARKE: No. I'm able to live very efficiently because it's 15 feet from my bedroom to my office. I'm surrounded by competent and friendly helpers. The mechanics of my life are taken care of, so I can work with much higher efficiency than anyone who has to spend two or three hours a day commuting.

KATE KLOOS: Gentry, why did you choose to work with Sierra to take this Rama collaboration and bring it to life as a PC game?

GENTRY LEE: About fifteen months ago—it was after conversations I had with both Arthur and our agent Russ Galen—we decided that the technology associated with computer entertainment had finally reached the stage where it might capture the grandeur of Rama. Russ put out feelers to see if anyone was interested. Wow! Was anyone interested! Everyone was interested. So it became a task then to see who would do the best job.

The very first decision that I made, with Russ' help, was to exclude those people who had never done interactive gaming before, who just had a lot of money and the notion that they ought to be in a lucrative business. And I've had a long-term love relationship with Sierra. Twelve years ago, I played a game called *The Wizard and the Princess,* designed by Roberta Williams. It was one of Sierra's first games. I played with my son Cooper, who was seven then, and it caused me to have an epiphany. When the pictures appeared on the screen, I said to Cooper, "Oh my gosh!" Once you start making this stuff visual … well, that's the future of entertainment, and I've been watching and following developments ever since, and keeping up with Sierra products.

With *RAMA*, the game, I wanted a company that was vertically integrated and had the skills, the team work, and the people who had done it before and were prepared to take the next steps forward. In this regard, Arthur and Russ were willing to follow my lead, and I can say I've not had one sad moment since I made the decision to go with Sierra on *RAMA*.

KATE KLOOS:You have chosen to do three different Rama products with Sierra. Was that a conscious decision—did that have anything to do with the Ramans doing things in threes?

GENTRY LEE: Actually, it didn't. Sierra saw the vast amount of material in the Rama novels. They began the relationship thinking in terms of multiple games, to let this world and its inhabitants become bigger as the technology expanded. Sierra approached me with the idea of buying three games—and, incidentally, they have an option for up to three more, so it could be as many as six games.

ARTHUR C. CLARKE: Three more novels.

GENTRY LEE: That's right. The ideas in the Rama series are so vast and they cover so much area that it could be a source for three or more games, easily.

ARTHUR C. CLARKE: It does seem appropriate to do this in threes.

GENTRY LEE: Yes, there's no question whatsoever that if you're going to do a *RAMA* game, like the Ramans you ought to do it in threes. Now, of course, it feels completely comfortable to do it that way. But in the beginning, when we were first considering it, we focused only on what the first game should be. It was Sierra who said let's do it in threes.

ARTHUR C. CLARKE: And then we'll do three threes.

GENTRY LEE: Right, three threes. Nine, right? Oh boy!

KATE KLOOS: So that means that you two have to be thinking about the next Rama novel.

ARTHUR C. CLARKE: He can do all the thinking. I can just relax.

GENTRY LEE: (Laughs.) We'll have a partnership. I'll make a suggested list and you choose, OK? Does that sound fair?

ARTHUR C. CLARKE: Yup, yup.

KATE KLOOS: Gentry, do think science fiction is a form that's well suited to computer games and how do you see the onset of PC gaming changing science fiction?

GENTRY LEE: I was at first very disturbed at the number of people who were natural science fiction readers—young people who are scientifically inclined—who were becoming so immersed in the computer world that they weren't doing the kind of reading that our generation did. In fact, the general dropoff in reading skills and interest in reading has bothered me for some time. But as the technology got better and better, I decided that this was another evolutionary process and I was becoming one of those people afraid of change. As I started looking at doing science fiction as a literary form in a computer game, I saw that the possibilities are endless.

As Arthur said earlier, some people are able to imagine well on the basis of reading, but many people need pictures in order to grasp anything that is completely new. When you're talking about aliens like the Octospiders and the Avians, with velvet underbellies and things like this, to see them rendered, to hear them squawk is to really have a sense of what they're all about. I believe that we'll see a new kind of science fiction. In the future, stories may go into computer games and books at the same time and people will be able to compare the visions that they are having in their minds with the visions created by the artists working with the writer.

ARTHUR C. CLARKE: Marshall McLuhan, where are you now? We need you.

GENTRY LEE: Right. That's right.

KATE KLOOS: So does thinking about a computer game change the way you develop a story line?

GENTRY LEE: In the past it hasn't. But now that I have been through this extraordinary experience of trying to blend a story and game play—which is what we're trying to do in *RAMA*—neither one ascended. Good game play, good story, wrapped together in a literary form. I now think that most of my novels in the future will be shaped by the fact that there is another medium that may reach more people.

KATE KLOOS: I'm going to change the subject a bit. You created *2001: A Space Odyssey* more than 25 years ago. What are some of things in *2001* that you've seen come to pass?

ARTHUR C. CLARKE: Well, *2001* was written in a unique moment in human history. It was released before the first men had landed on the moon. In fact, it came before the first flight around the moon. So we had to guess at what it would be like there. On the whole we did pretty well. Our lunar landscapes were too jagged, and of course now it's obvious that the moon is pretty well sand-blasted and smooth. And who would have dreamed that the Bell System and Pan Am would no longer be with us?

Now, the other thing we had envisioned was the moons of Jupiter, which were just points of light in the most powerful telescope then. It wasn't until the Voyager missions that we got closer views of these fantastic places. We didn't do too bad even there.

GENTRY LEE: No, you did fairly well. No one could have predicted Io [a moon of Jupiter].

ARTHUR C. CLARKE: No one.

GENTRY LEE: That was just staggering.

ARTHUR C. CLARKE: Or Europa. In fact, it was the Voyager missions which made *Odyssey II* possible—indeed, imperative.

KATE KLOOS: The year 2001 is only five years away.

ARTHUR C. CLARKE: I know, I know. Terrifying!

KATE KLOOS: Terrifying? What are you going to be doing over the next five years?

ARTHUR C. CLARKE: Well, I hope to enjoy myself, relax with my family, and play with all these wonderful new toys (Sierra games) that you are giving me. Maybe I'll write the occasional short outline for a book.

KATE KLOOS: We just got your Mars book, *The Snows of Olympus,* at our office; it was just published in the United States. We see some of your Vistapro work, your landscapes of Mars. Of course, to a bunch of computer graphics people, it's stunning. What brought you to do some of those landscapes?

ARTHUR C. CLARKE: The whole book happened because I heard about the Vistapro program, got in touch with John Hinkley, and then realized the potential. You could take real maps of Mars as revealed by Viking and then massage

them to what you'd like to see on Mars—rivers and lakes and oceans and atmospheric clouds. It was fascinating to create virtual worlds with this program. I guess it made me feel like God.

KATE KLOOS: Do you think about space colonies on some of these planets and what they're going to look like?

ARTHUR C. CLARKE: Well, I've written a good deal about life on Mars and the Moon. I'm very pleased that right now two of my Mars stories, *The Sands of Mars* and *Transit to Earth,* are sitting in a Russian space craft on a little CD of some kind and will be landing on Mars, if all goes well, for future Martian colonists to read some time in the next century.

KATE KLOOS: Do you have any prediction what year that will be?

ARTHUR C. CLARKE: Ah, one can predict things that will happen technologically, but the time scale is impossible to predict. I mean, soon after the Apollo missions in 1969–1970, they were talking about a mission, a manned mission to Mars, in the 1980s. Well, I doubt that we will land on Mars before 2020, and that's if there's some fantastic breakthrough in propulsion technology.

GENTRY LEE: One of the drives behind Viking was to discover the distribution of water on Mars as a prelude to manned exploration. Our enthusiasm for the Viking mission, the first landed mission on Mars, was based on the fact that

the Mariner mission in 1971 had discovered water vapor in large quantities and the high likelihood of water in the polar caps on Mars. Was there water any where else, and there life of any kind? But we saw what we were doing in 1976 as just another step toward this manned colonization of Mars which I thought, when I was working on Viking, would be at the absolute latest in 1995. We have not been back to Mars with a landed spacecraft since then.

ARTHUR C. CLARKE: Or even to the moon without man. I can remember just after the *Apollo 11* spacecraft took off. I was there at the launch with Walter Cronkite and Wally Schirra. We interviewed the Vice President of the United States and he said now we must go on to Mars. Then he nearly went on to prison. (Laughs.) Cut that!

KATE KLOOS: What's your favorite book, Gentry?

GENTRY LEE: My favorite book of all time is probably Faulkner's *The Sound and The Fury.* But right up there close is Albert Camus' *L'Etranger* and Dostoevsky's *Crime and Punishment.* And if I'm allowed to say this without bothering the gentleman on my right, *Rendezvous with Rama* by Arthur C. Clarke. The great joy of my life is that he has allowed me to share that world that he created and develop it, oh, just a smidgen. Because if he had not created it, I could never have done what I did.

ARTHUR C. CLARKE: Well, thank you. I appreciate that. I also am very much aware of my own limitations. I've not read any of the books that you've read. I've read very little real literature because I've spent most of my misspent youth reading science fiction magazines. Though it paid off in the long run.

GENTRY LEE: It certainly did.

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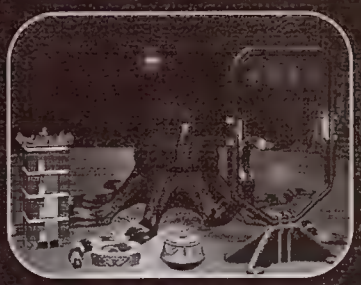

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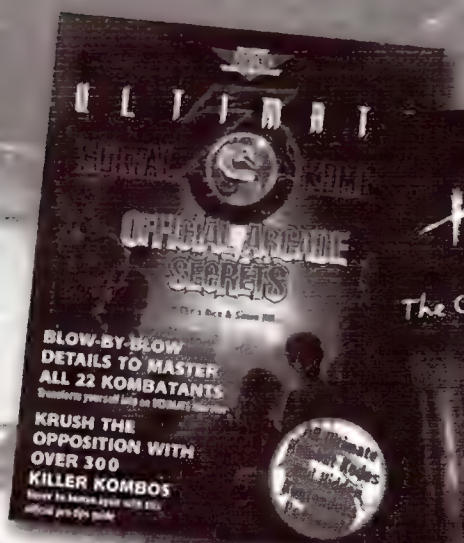

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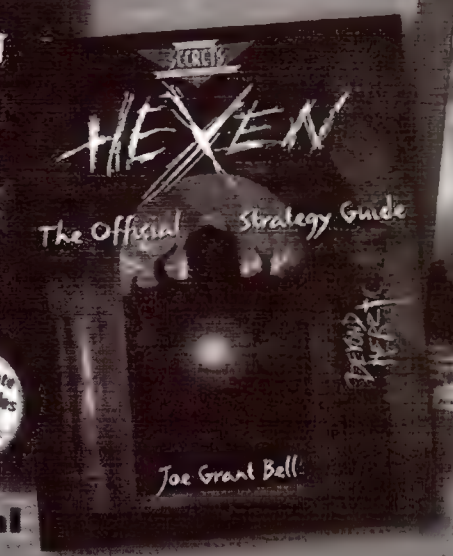

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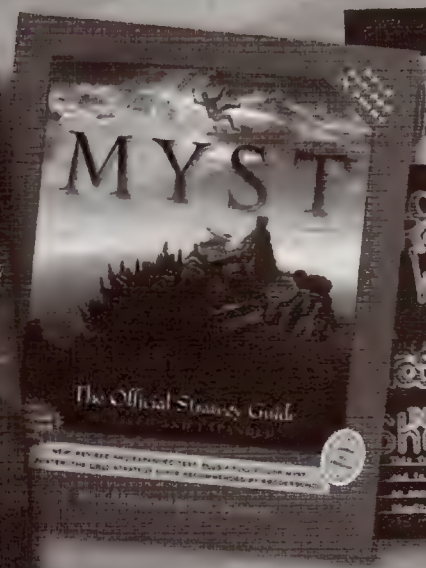

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Rama: The Official Strategy Guide

RICK BARBA is a game designer and author of a number of game books, including Prima Official Strategy Guides for The Pandora Directive, Under a Killing Moon, Stonekeep, and Mission Critical as well as Prima's Zork Nemesis [illegible]zed Secrets and Solutions.

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